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Digital Finance, Digital Transformation, and Earnings Persistence in Chinese Manufacturing Firms: A Narrative Literature Review

CAI SHA[1,2], Hazlina Binti Abd Kadir[1*]

[1]Graduate School of Management, Management and Science University, Shah Alam, Malaysia

[2]School of Econmics and Management, Ankang University, Shaanxi, China

*Corresponding Author: Hazlina Binti Abd Kadir

ORCID: 0000-0002-0576-6705

ABSTRACT: Digital finance and enterprise digital transformation are changing how Chinese manufacturing firms obtain capital, coordinate production, monitor operations, and communicate financial performance. Yet the implications of these changes for earnings persistence—the extent to which current earnings are sustained in subsequent periods—remain insufficiently integrated in the literature. This article provides a critical narrative review of scholarship on digital financial development, organizational digital transformation, financial reporting quality, and the persistence of accounting earnings, with Chinese manufacturing firms as the principal application context. Rather than treating digital finance, digital transformation, and earnings persistence as interchangeable indicators of improvement, the review differentiates access to finance, operational capability, accounting measurement, and the time-series properties of reported profit. It develops an integrative framework in which digital finance may facilitate sustained operating outcomes by relaxing financial constraints and enabling digital investment, while internal digital transformation may strengthen production coordination, working-capital management, internal control, and reporting reliability. However, implementation costs, speculative financing, technology dependence, and discretionary reporting can weaken or reverse these relationships. The literature provides comparatively strong evidence for finance–innovation and transformation–reporting links, but less direct evidence for the full chain ending in earnings persistence. The review identifies measurement issues, alternative explanations, contextual moderators, and a research agenda for future firm-level studies. Implications for manufacturing managers, financial institutions, investors, and policymakers are discussed.

KEYWORDS: digital finance; digital transformation; earnings persistence; manufacturing firms; financial reporting quality

1. INTRODUCTION

The digitalization of finance and industry has become a central feature of contemporary business change. For manufacturing companies, digital technologies increasingly influence both sides of the corporate balance sheet: firms use digital channels to seek capital and manage liquidity, while adopting data systems, connected equipment, predictive analytics, and integrated platforms to improve production and financial decisions. China offers a particularly relevant setting because digital financial services and industrial modernization have developed alongside a large, diverse manufacturing base. These developments invite an important accounting question: do digital finance and digital transformation help manufacturing firms generate earnings that remain

sustainable over time?

The question is more demanding than asking whether digital tools increase current profitability. A temporary reduction in expenses, a favorable financing event, or an accounting estimate may raise reported earnings in one year without supporting performance in the next. Earnings persistence refers to the capacity of current earnings to predict subsequent earnings and is commonly understood through the distinction between the more persistent cash-flow component and the less persistent accrual component. Sloan (1996) established the importance of this distinction for interpreting future earnings, and Richardson et al. (2005) connected lower accrual reliability with weaker persistence. Dechow et al. (2010) further emphasized that persistence is one dimension of earnings quality and that accounting outcomes must be interpreted in relation to fundamental business performance. Together, these studies imply that neither an increase in profit nor a reduction in apparent earnings volatility is sufficient to demonstrate better persistence.

The newer literature provides complementary, but mostly separate, insights. Research on digital finance in China reports that financial technology and digital inclusion can ease financing frictions and support innovative activity (Ding et al., 2022; Yao & Yang, 2022). Work focused on manufacturing firms similarly links digital finance with science-based innovation through financing constraints and intellectual capital (Chen & Yang, 2026). Studies of digital transformation show that reorganizing processes around digital technologies can reshape value creation (Vial, 2019; Verhoef et al., 2021). Chinese evidence also associates transformation with improved financial reporting quality, management forecasts, and lower earnings opacity (Zheng et al., 2023; Liu et al., 2024; Liu, 2024). These are promising findings, but they do not automatically establish that earnings become more persistent.

A gap therefore exists between three related discussions: whether external financial digitalization facilitates investment, whether internal corporate digitalization creates durable productive capacity, and whether accounting earnings reliably reflect the resulting capacity. The manufacturing context makes this gap especially consequential. Production assets are capital-intensive, operational interruptions are costly, inventories can be substantial, and product cycles may be long. A manufacturer may improve throughput while still experiencing volatile margins because of raw-material prices or customer concentration. It may also strengthen accounting controls without changing the economics of its core products.

This article has three objectives. First, it clarifies the concepts of digital finance, digital transformation, and earnings persistence, identifying where they overlap and where they differ. Second, it synthesizes plausible mechanisms linking them, while distinguishing documented empirical associations from interpretive propositions. Third, it identifies the boundary conditions and measurement choices necessary for more convincing future research on Chinese manufacturing firms. The contribution is conceptual integration, not a new empirical test, systematic meta-analysis, or claim that all three links have already been demonstrated in a single sample.

The remainder of the article proceeds as follows. Section 2 describes the review approach and core definitions. Section 3 discusses the theoretical mechanisms connecting financial access, digital capabilities, and accounting outcomes. Sections 4 through 6 examine digital finance, enterprise transformation, and earnings persistence in greater detail. Section 7 proposes an integrated analytical framework and discusses heterogeneity. Section 8 evaluates evidence limitations and research opportunities. Section 9 presents implications, and Section 10 concludes.

2. REVIEW APPROACH AND CONCEPTUAL SCOPE

2.1 Review design and evidential boundaries

This paper adopts a narrative, theory-informed literature review. It draws on established accounting research about earnings persistence and earnings quality; conceptual research about financial technology and corporate digital transformation; and

empirical studies concerning Chinese firms, particularly the financing, innovation, reporting, and governance channels relevant to manufacturers. The reference set was selected for conceptual relevance and explanatory coverage rather than through a formally reproducible database screening protocol. Consequently, this article does not report PRISMA counts, pooled effect sizes, or a claim of exhaustive coverage. Its principal method is comparative interpretation of findings across partially connected research streams. This distinction matters because the available evidence varies by outcome, population, and level of analysis. A study may observe a city-level index of financial technology but use firm-level patent applications as its outcome. Another may capture corporate digital transformation through textual disclosures and use earnings management or forecast accuracy as its dependent variable. An association between financial technology and innovation supports one segment of the proposed mechanism; it does not, by itself, demonstrate that future accounting profit is more predictable. The review therefore labels evidence as directly concerned with earnings persistence, indirectly informative through related accounting outcomes, or informative about the financing and operational prerequisites of persistence.

Manufacturing firms are the central context of application, but some cited research concerns Chinese listed companies across multiple industries. Such cross-industry results are used to inform mechanisms, not presented as manufacturing-specific estimates. This choice preserves the breadth required to integrate the literature while keeping the generalizability of each finding visible. It also avoids treating digital finance as identical to the broader digital economy, or earnings management as a perfect substitute for earnings persistence.

2.2 Digital finance: an external financial environment

Digital finance refers here to the delivery, coordination, and analysis of financial services through digital technologies. It includes digitally enabled payments, credit assessment, financing platforms, online service channels, data-based risk evaluation, and related forms of financial intermediation. Gomber et al. (2017) describe digital finance as a field spanning financial functions, technological concepts, and participating institutions. In the Chinese corporate literature, regional financial-technology or digital financial inclusion indicators often serve as proxies for a firm's external financial environment rather than a direct measure of the firm's own digital competence.

This distinction is essential. A manufacturer located in a digitally advanced financial market may have greater access to lenders and credit information even if its factory continues to use conventional production methods. Conversely, a highly automated manufacturer can operate in a region with limited financial inclusion. Digital finance is thus best treated as a set of opportunities and constraints surrounding a firm, not as proof that the firm has transformed its organization.

2.3 Digital transformation: organizational reconfiguration

Digital transformation involves more than purchasing software, installing equipment, or placing documents online. Vial (2019) understands it as a process through which digital technologies create changes requiring strategic and organizational responses. Verhoef et al. (2021) distinguish digitization, digitalization, and digital transformation: converting analog information into digital form is different from redesigning activities around digital processes, and both are narrower than changing value creation and business models. For manufacturers, transformation can involve integration among procurement, production, inventory, sales, treasury, and financial reporting, alongside more strategic shifts toward intelligent manufacturing or service-supported products.

A firm's level of transformation should therefore be evaluated by the depth and integration of its operational changes. The presence of an enterprise resource planning system or a high frequency of digital keywords in annual reports may provide useful information, but neither establishes that data flows across functions or that management decisions improve. Digital transformation can also be uneven: a company may adopt advanced factory sensors while maintaining weak accounting controls, or improve reporting systems without modernizing production. Such differences may explain why apparently similar digital investments

generate different earnings outcomes.

2.4 Earnings persistence: a time-series property, not a slogan

Earnings persistence concerns how strongly current earnings carry forward into future periods. It is commonly examined through models relating future earnings to current earnings, with higher persistence indicating stronger continuation, subject to model design and economic context. Sloan (1996) showed that the accrual and cash-flow components of earnings differ in their persistence. Richardson et al. (2005) extended this logic by demonstrating the importance of the reliability of accrual components. Dechow et al. (2010) placed persistence alongside other earnings-quality attributes while cautioning against assuming that a single proxy fully captures quality.

For manufacturers, persistence should be distinguished from three neighboring concepts. Profitability describes the level of returns; smoothness describes the pattern of fluctuations; and earnings management concerns discretion in how performance is reported or produced. A consistently loss-making firm may have highly predictable earnings, while a rapidly growing firm may show relatively unstable earnings during expansion. Smoothing can also conceal underlying shocks rather than eliminate them. The relevant question is not simply whether profits are positive or stable, but whether reported results reflect recurring productive capacity and provide useful information about subsequent performance.

3. THEORETICAL FOUNDATIONS OF THE INTEGRATED RELATIONSHIP

3.1 Information frictions and the financing channel

Manufacturers often need finance before revenue is realized. Machinery must be acquired, components purchased, workers paid, and inventories maintained while products move through production and distribution. Information frictions can arise because outside financiers observe fewer operational details than managers. Digital finance may reduce these frictions by using transaction histories, payment data, supply-chain information, and more efficient screening and monitoring. Gomber et al. (2017) offer the broader conceptual background for these digitally enabled financial functions.

The empirical work by Ding et al. (2022) is especially relevant. Using variation in financial-technology development across Chinese cities, the authors find stronger innovation responses among firms with greater financing constraints and identify bank lending and research investment as channels. Yao and Yang (2022) likewise report that digital finance supports innovation among Chinese Growth Enterprise Market firms partly through alleviating financing constraints. These findings indicate that digital financial development can influence real corporate decisions rather than only transactions within the financial sector. However, neither study identifies an automatic improvement in the persistence of accounting earnings. Financing access is a potential input into later performance, not the final outcome itself.

One implication follows: the relationship between digital finance and earnings persistence should depend on how funds are allocated. Credit used to replace high-cost short-term liabilities, modernize essential machinery, or stabilize working capital could support recurring operating returns. Credit used for low-productivity expansion or temporary financial transactions may create debt service obligations without a durable improvement in cash generation. The same digital finance infrastructure can therefore support different earnings trajectories depending on corporate investment discipline.

3.2 Organizational capabilities and operational durability

Digital transformation may influence earnings persistence through the firm's internal capacity to transform resources into repeatable output. Vial (2019) treats organizational adaptation and barriers as integral parts of digital transformation, while Verhoef et al. (2021) emphasize capabilities, structures, and new performance metrics. Applied to manufacturing, these perspectives suggest that value is not created by technology alone but by its integration with production routines, managerial

expertise, data governance, and complementary assets.

Consider a producer that integrates demand forecasts with purchasing and production schedules. Better information may reduce inventory obsolescence, emergency procurement, and idle equipment. Predictive maintenance may prevent costly breakdowns, while integrated customer and supplier data may improve delivery reliability. If these improvements survive beyond the installation year, they can generate more dependable operating cash flows. Yet capability building takes time. During implementation, expenditure, training, process redesign, and system errors can disrupt operations. Thus, a short-run decline in earnings does not necessarily refute long-run benefits, just as an early improvement does not establish durable transformation.

Digital finance and digital transformation can reinforce each other in this setting. External access to finance may make technology investments feasible, while better internal data may make the firm more legible to financial institutions. The feedback may be particularly relevant to smaller private manufacturers with limited tangible collateral. Nonetheless, improvements in operational capability and in lender assessment should be analytically separated, because circular arguments can arise if both are measured by the same digitalization index.

3.3 Agency problems, internal control, and reporting reliability

The third mechanism concerns managerial incentives and the reliability of accounting information. Digital technologies can make transactions more traceable, automate reconciliations, link physical inventories with accounting records, and provide boards or auditors with more timely information. Better control environments may reduce errors or limit opportunities for discretionary reporting. At the same time, complex information systems can concentrate knowledge among specialists, create cybersecurity vulnerabilities, and make some judgments less transparent to external investors.

Chinese evidence supports the relevance of governance and reporting channels. Zheng et al. (2023) find a positive association between digital transformation and financial reporting quality in a sample of listed companies and identify internal control as an intervening mechanism. Liu et al. (2024) report improved management earnings forecast quality in relation to digital transformation, while Liu (2024) documents a negative relationship between digital transformation and measures of earnings opacity, aggressiveness, and smoothing. Xie et al. (2026) show that executives' digital backgrounds are associated with better earnings quality through information technology application and transparency. These studies indicate that digital capabilities may change the information environment in which earnings are produced and disclosed.

They also illustrate a crucial analytical boundary. Accurate forecasts, reduced earnings management, and greater transparency may help investors assess whether profits are recurring, but they are not synonymous with higher persistence. A manufacturer may report volatile but accurate earnings because product demand genuinely fluctuates. Higher reporting quality can reveal instability that previously remained hidden. Consequently, the governance channel should be treated as improving the credibility and interpretability of persistence, rather than guaranteeing a higher autoregressive coefficient for earnings.

4. DIGITAL FINANCE AND THE ECONOMIC FOUNDATIONS OF PERSISTENT EARNINGS

4.1 Credit availability, financial resilience, and investment continuity

An important contribution of digital finance is the potential reduction of barriers between firms and external funding. Manufacturing businesses frequently face mismatches between cash outflows for raw materials, equipment, and wages and cash inflows from customers. Such mismatches become more difficult when a company depends heavily on a limited group of lenders or possesses assets that are difficult to value as collateral. Digital financial channels can broaden the information available to lenders and lower some transaction costs, although the effects vary by product, firm, and institutional environment.

Ding et al. (2022) show that financial-technology development is associated with stronger innovation among more financially

constrained Chinese firms; their proposed channels include increased lending and intensified bank competition. The study offers a credible basis for expecting financial development to support investments that conventional credit allocation might discourage. Similarly, Yao and Yang (2022) link digital finance with innovation among growth-oriented Chinese companies through the easing of financing constraints. The practical implication for a manufacturer is that finance may enable continuity of research, capital renewal, and essential inputs during periods when operating cash flow is temporarily weak.

The earnings consequence is nevertheless conditional. More abundant funding can smooth the timing of production expenditure, prevent costly interruptions, and support long-term investments. These mechanisms may reduce the exposure of future operating income to short-term liquidity shocks. However, easy access to finance can also encourage excessive leverage, aggressive expansion, or dependence on short-term credit. A manufacturer that increases production capacity beyond sustainable demand may face underutilized assets and impairment charges later. Digital finance can therefore contribute to resilience without necessarily raising average profitability or earnings persistence in every firm.

4.2 Innovation and the transition from investment to recurring returns

Innovation provides a second pathway. Chen and Yang (2026) study Chinese leading manufacturing firms and find that digital finance is positively related to science-based innovation, with financing constraints and intellectual capital identified as explanatory channels. This sector-specific evidence is especially useful because the economics of manufacturing innovation differ from those of many asset-light businesses. New materials, production processes, equipment configurations, and technical partnerships can require substantial upfront expenditure before commercial benefits are realized.

Li et al. (2023) also associate the development of the broader digital economy with corporate innovation in China and identify financing constraints as part of the transmission mechanism. Their concept of the digital economy is wider than digital finance, so the finding should not be interpreted as a pure financial-technology effect. It nevertheless suggests that data-intensive economic environments may complement capital allocation by supporting innovative activity. Taken together, these studies imply that the economic effects of financial digitalization may operate over multiple years rather than appearing immediately in annual earnings.

For earnings persistence, the quality of innovation matters more than the patent count alone. A production innovation that reduces recurring material waste may improve margins year after year. A product innovation may create a temporary first-mover advantage that disappears as competitors imitate it. Some patents protect commercially valuable capabilities; others generate limited operating returns. Studies linking finance to patents therefore provide evidence about an intermediate outcome, not conclusive proof of sustainable accounting profit. Future research should distinguish innovation input, innovation output, commercialization, and post-commercialization cash generation rather than collapse them into one pathway.

4.3 Financing digital transformation rather than merely funding expansion

Digital finance may also help companies acquire the resources required for internal digital transformation. Yu and Yan (2022) find that digital finance is associated with digital mergers and acquisitions among Chinese listed firms, with financing constraints and innovation capacity playing intermediary roles. This research provides a relatively direct link between the financial environment and a particular route to technological transformation. It also highlights a limitation: the acquisition of a digitally capable business is not equivalent to the successful integration of its technologies and personnel.

Manufacturers may choose among internal software development, equipment modernization, third-party services, and acquisition-led transformation. Each route has a different financial profile and risk structure. Long-lived investments require stable funding and a reasonable expectation of future benefits; acquisitions introduce valuation and integration risks; outsourced platforms may reduce initial costs while generating vendor dependence. The most favorable configuration for persistent earnings is therefore not simply the largest digital investment, but financing matched to the project's expected cash-flow timing and the

firm's ability to implement change.

In this regard, digital finance should be viewed as an enabling environment whose quality includes affordability, maturity structure, transparency, and risk management. A rapidly expanding digital credit market that offers expensive short-term loans would have different implications from a market supporting appropriately structured investment finance. Without these distinctions, researchers risk finding a positive relationship between regional digital finance and innovation while overlooking the financial fragility that might later undermine earnings persistence.

5. CORPORATE DIGITAL TRANSFORMATION AND DURABLE MANUFACTURING PERFORMANCE

5.1 Operations, supply chains, and the recurrence of cash flows

Manufacturing is a useful setting for studying the economic mechanisms of digital transformation because operating performance depends on repeated coordination of materials, equipment, labor, and demand. Production planning systems can connect orders to procurement and capacity; machine data can help identify maintenance requirements; and integrated inventory records can reduce discrepancies between physical stocks and accounting information. These possibilities are consistent with Vial's (2019) description of transformation as organizational change supported by digital technologies, rather than a narrow technological installation.

Digital integration can support recurring performance through several operational channels. Better demand information may reduce overproduction and obsolete stock. More reliable machinery can prevent unplanned downtime and lost orders. Closer integration with suppliers can reduce emergency purchases and improve input availability. Data-informed quality control may lower returns and warranty costs. Where these changes are stable, they can improve the repeatability of operating margins and cash conversion. The potential effect on future earnings is therefore economically plausible even though the individual mechanisms require firm-level verification.

Manufacturers differ in how much they can capture these benefits. Firms producing standardized, high-volume goods may obtain large advantages from automation and process monitoring. Producers of customized equipment may gain more from digital design, project coordination, and service-related data. Companies with unstable customer orders might improve forecasting without eliminating demand volatility. Consequently, sector averages may conceal important variation among manufacturing subsectors, and a single measure of digitalization can misrepresent different paths to economic value.

5.2 Organizational change and the time profile of performance

The timing of transformation is central to interpreting earnings persistence. Verhoef et al. (2021) emphasize organizational structures and capabilities in their account of digital transformation. Manufacturers may need to redesign authority, retrain staff, revise supplier agreements, and align performance measurement with data-intensive operations. These are costly activities, some of which produce immediate accounting expenses while their benefits are delayed or uncertain.

A short-term analysis could therefore produce misleading conclusions. During installation, a manufacturer may recognize consulting expenditure, parallel-system costs, staff training, and depreciation. Operational disturbances may depress reported profit. Once a system becomes effective, the same company may experience improvements in production yield and working-capital efficiency. Alternatively, a poorly governed project can continue consuming resources without improving output. A credible evaluation should distinguish transition costs from steady-state benefits and should not assume a linear relationship between transformation intensity and earnings persistence.

The relationship may also be nonlinear because early digital investment creates the infrastructure for later integration. Isolated software applications may generate little return until production, procurement, finance, and customer information can interact.

At higher levels of complexity, additional integration can introduce cybersecurity, system compatibility, and coordination risks. Accordingly, the most plausible theoretical prediction is not that more technology always produces better earnings, but that complementary organizational capabilities determine whether digital investments become repeatable productive routines.

5.3 Financial visibility, managerial decisions, and internal control

Digital transformation can affect reported earnings through better financial visibility as well as through real production outcomes. Data reconciliation between warehouse activity and inventory accounts can expose losses earlier; automated approval trails may identify unusual transactions; and improved project costing can support more accurate budget and profitability analysis. These controls may reduce unintentional errors and limit particular forms of opportunistic reporting. They may also change the timing of recognizing adverse information, including obsolete inventory or unsuccessful capital investments.

Zheng et al. (2023) find evidence that internal control mediates the association between transformation and financial reporting quality for Chinese listed firms. Liu et al. (2024) observe improvements in management earnings forecast quality linked to transformation. Liu (2024) reports lower earnings opacity and lower measured smoothing in digitally transformed companies, with notable differences across firm characteristics. Xie et al. (2026) connect executives' digital backgrounds to better earnings quality through technology use and transparency. Although the studies employ different constructs, they consistently indicate that organizational digital competence can be relevant to financial information quality.

The direction of reporting effects must nevertheless be interpreted carefully. More precise information may cause firms to recognize losses sooner and disclose genuine earnings fluctuations more openly. Lower smoothing, for example, need not imply lower persistence, and lower persistence need not imply poorer reporting. It is possible for better reporting systems to produce a less visually stable earnings series while increasing its usefulness for forecasting future cash flows. This observation explains why accounting measurement must be treated as a separate pathway rather than merely an automatic outcome of operational modernization.

5.4 Transformation failure and operational dependence

Digital systems create new dependencies as well as efficiencies. A breakdown in a central platform can interrupt multiple functions simultaneously. Weak data governance can propagate errors through connected accounting and production systems. Excessive reliance on a small number of vendors can create switching costs and restrict managerial flexibility. Investments justified by optimistic assumptions may also become stranded as technology changes or business conditions deteriorate.

These risks matter for earnings persistence because they introduce new sources of nonrecurring expenses and operating disruption. Cybersecurity incidents, integration failures, and impairment charges may cause future earnings to diverge sharply from earlier performance. Furthermore, automated decision systems do not remove agency problems: management can still influence model assumptions, select performance indicators, or use new information advantages opportunistically. The net effect of transformation should therefore be understood as the balance between improved coordination and newly created technological, financial, and governance exposures.

6. EARNINGS PERSISTENCE: ACCOUNTING INTERPRETATION AND EVIDENCE

6.1 Why current profits may fail to persist

The concept of earnings persistence is rooted in the informational distinction between the current period and later periods. Reported income contains economic returns generated by routine operations, but also accrual estimates, temporary market effects, unusual gains, and the consequences of managerial discretion. Sloan (1996) shows that current earnings contain components with different implications for future earnings. Richardson et al. (2005) associate lower accrual reliability with lower

persistence, indicating that the accounting characteristics of earnings contribute to their ability to predict future performance.

This perspective is particularly relevant to manufacturing. Revenue recognition can depend on delivery and acceptance terms; inventory costs and write-downs rely on costing assumptions and estimates; depreciation reflects expectations about the useful lives of specialized assets; and product warranties require judgments about future claims. Moreover, commodity costs, exchange rates, capacity utilization, and customer demand can move sharply across periods. Digital transformation may improve the quality of the underlying information, but it cannot eliminate all genuine economic shocks or accounting estimates.

Dechow et al. (2010) caution that earnings quality is context-dependent and partly reflects fundamental performance. For that reason, a review of digitalization and earnings persistence cannot isolate accounting ratios from the firm's operating model. A manufacturer with highly cyclical demand may have less persistent earnings than a regulated utility even with excellent controls. Conversely, high persistence driven by a stagnant but predictable business need not indicate superior innovation or long-term growth. Persistence is informative, but it should be evaluated with cash-flow performance, investment needs, and economic resilience.

6.2 Operational persistence versus reporting persistence

It is useful to distinguish two conceptually different routes by which digitalization may influence observed persistence. The first is operational persistence: digital capabilities help a firm reproduce margins, manage working capital, maintain productivity, and retain customers across periods. If these improvements generate recurring cash flows, future earnings may become more strongly connected to current earnings. The second is reporting reliability: digital systems improve the recording, estimation, and disclosure of the firm's economic activities. Better reporting may make earnings more informative even when operating outcomes remain variable.

The two routes can move together, but they need not. Improved production planning may enhance recurring operating results while a firm still practices aggressive accounting. Equally, better controls can make a firm's weak economic prospects more transparent. The literature on digital transformation and accounting outcomes is mainly informative about the second route. Zheng et al. (2023), Liu et al. (2024), Liu (2024), and Xie et al. (2026) provide evidence on reporting quality, forecast quality, opacity, and earnings management. None of those dependent variables should be relabeled as a direct estimate of earnings persistence without examining its precise operationalization.

An important synthesis follows. Improvements in financial reporting quality may increase the credibility of measured persistence rather than the magnitude of persistence itself. If previously managed earnings concealed operating shocks, more accurate reporting could reveal lower serial correlation. Investors might benefit from more faithful earnings despite an apparent decline in stability. A sound framework must therefore allow a positive reporting-quality effect to coexist with a neutral or negative measured persistence effect.

6.3 Common measures and their limitations

Future research can measure persistence using firm-level earnings forecasting regressions, commonly represented by the relationship between earnings in period t+1 and earnings in period t. Depending on design, a coefficient closer to one is often described as greater continuation of earnings, but this interpretation requires care. Scaling by assets, handling losses, controlling trends, and distinguishing firm-specific from pooled estimates can change the meaning of the coefficient. An earnings series with structural breaks or rapidly changing growth prospects may not be well summarized by one autoregressive parameter.

A stronger design could examine the persistence of earnings components separately. Sloan (1996) motivates the separation of cash flow and accruals, while Richardson et al. (2005) motivates attention to accrual reliability. This decomposition is valuable for manufacturers because changes in receivables, inventory, payables, and depreciation can be economically large. Digital

transformation could improve cash-flow generation, working-capital discipline, and accrual estimation through different mechanisms. Combining all effects into a single earnings coefficient may conceal the processes of interest.

Researchers should also distinguish persistence from related indicators such as discretionary accruals, earnings smoothing, forecast accuracy, earnings opacity, and accounting conservatism. These measures illuminate specific dimensions of reporting, but they answer different questions. A finding that digital transformation is negatively associated with smoothing (Liu, 2024) cannot establish that persistence increases. Similarly, improved management forecasts (Liu et al., 2024) may indicate better information processing rather than stronger economic continuity. Construct validity is especially important when a paper's title promises earnings persistence rather than the broader and less precise category of earnings quality.

6.4 Interpreting the indirect evidence with appropriate caution

The literature supports a sequence of reasonable possibilities. Digital financial development may ease funding constraints and encourage investment (Ding et al., 2022; Yao & Yang, 2022). In leading manufacturing firms, it is associated with science-based innovation (Chen & Yang, 2026). Digital finance also appears related to acquisition-based digital upgrading (Yu & Yan, 2022). Separately, transformation and digital managerial capability are associated with several measures of reporting quality (Zheng et al., 2023; Liu, 2024; Liu et al., 2024; Xie et al., 2026). Classic accounting research indicates why operational continuity and accrual reliability matter for future earnings (Sloan, 1996; Richardson et al., 2005).

These pieces jointly motivate, but do not conclusively verify, the chain from digital finance to digital transformation to earnings persistence. Much of the cited evidence concerns broad listed-company samples, and the specific mechanisms differ across studies. A literature review should not manufacture a unified empirical result by combining coefficients from unrelated outcomes. The defensible conclusion is narrower and more useful: several documented channels make the integrated relationship plausible, while its magnitude, direction, and sector-specific conditions remain open empirical questions.

7. AN INTEGRATED FRAMEWORK AND BOUNDARY CONDITIONS

The evidence can be organized into an integrated but explicitly provisional framework: regional digital financial development affects firms' access to information and external capital; these resources may support technological upgrading and organizational change; internal transformation may alter operational cash flows and the reliability of financial records; together, changes in business performance and accounting measurement shape observed earnings persistence. The framework is not a claim that one linear mediation model has already been established. It is a map of channels that can operate separately, sequentially, or in opposition.

Three analytically distinct paths are especially important. The investment path runs from digital finance through lower financing frictions to productive investment and more durable operating returns. The capability path runs from technology adoption through organizational integration to recurring efficiency gains. The information path links digital systems and managerial expertise with internal control and reporting reliability. Digital finance may influence reporting indirectly by changing investment incentives or monitoring practices, while digital transformation may also improve the firm's ability to obtain finance through better records. Such reciprocal processes caution against simple one-directional interpretations.

The net effects are likely to vary across types of manufacturers. Private firms with weaker access to conventional credit may gain more from expanded financial channels, whereas large established enterprises may already have financing advantages. Firms in technologically demanding industries may be better positioned to convert digital spending into innovation, but they may also incur high implementation costs. Smaller businesses can benefit from accessible digital platforms yet have fewer resources to manage cybersecurity and organizational redesign. The manufacturing evidence of Chen and Yang (2026), together with the financing

findings of Ding et al. (2022), makes these distinctions reasonable candidates for investigation rather than settled general rules.

Regional conditions create additional differences. Digital financial services depend on the surrounding financial and technological infrastructure, the quality of data, and the institutions that govern lending and transactions. Regional measures can therefore capture several complementary developments at once. A positive coefficient on a regional digital-finance index might reflect better funding access, more dynamic local markets, stronger public infrastructure, or unobserved managerial quality. Researchers must distinguish the particular mechanism under investigation instead of treating the index as a single technological intervention.

Corporate governance can amplify or constrain all three paths. Strong boards and internal control systems may support investment discipline, project oversight, and reliable financial reporting. Concentrated managerial power could instead allow technology expenditure or financing opportunities to serve short-term performance targets. The Chinese reporting studies provide support for considering governance differences: Liu (2024) reports heterogeneous reporting associations across audited and ownership groups, while Xie et al. (2026) emphasizes managerial digital backgrounds and organizational characteristics. These findings justify attention to governance but should not be projected directly onto untested persistence outcomes.

The framework yields four propositions for subsequent empirical work. **P1:** Digital financial development is more likely to support earnings persistence when it finances productivity-enhancing activities rather than indiscriminate expansion. **P2:** The relationship between transformation and persistence depends on integration quality and the length of the implementation horizon. **P3:** Financial reporting reliability changes the informativeness of measured persistence and need not move in the same direction as its numerical magnitude. **P4:** Ownership, financial constraints, subsector technology intensity, regional institutions, and governance jointly shape the net relationship. These propositions represent research directions, not findings attributed to the reviewed studies.

8. CRITICAL ASSESSMENT AND FUTURE RESEARCH AGENDA

The most significant gap is the scarcity of directly comparable evidence on the complete finance–transformation–persistence relationship within manufacturing firms. Existing studies tend to focus on the easier-to-observe outcomes of financing access, patents, digital acquisitions, disclosure quality, or earnings management. Each contributes to a possible explanation, but the combination remains an inference. A useful next step is to estimate whether digital finance and firm-level transformation jointly predict subsequent earnings, while measuring the operational and accounting pathways separately.

A second gap concerns measurement validity. Regional financial-technology indices should not be interpreted as the actual financing received by individual firms. Annual-report keyword measures of transformation can partly reflect communication strategy rather than implemented digital capability. Patent outcomes are not the same as recurring returns. Earnings smoothing is not the same as persistence. Researchers should combine multiple measures where possible: financing costs and maturity, digital capital expenditures or implementation milestones, production efficiency, cash conversion, accrual components, and future earnings. Such triangulation would reduce reliance on broad indicators that conceal the process being tested.

A third problem is identification. Firms that expect stronger growth may invest more in digital systems, attract financing, and report better earnings, creating reverse causality. Regional economic development may influence digital finance and profitability simultaneously. Ownership structures, corporate governance, industry shocks, and management quality can affect both the explanatory variables and reporting outcomes. Longitudinal manufacturing panels with firm and time effects would help, but fixed effects alone do not eliminate time-varying confounding. Carefully justified policy changes, staggered infrastructure expansion, or credible quasi-experimental strategies could provide stronger evidence, provided their identifying assumptions are examined explicitly.

A fourth issue is temporal mismatch. Digital finance availability, project approval, equipment installation, employee learning, accounting-system integration, and realized productivity may occur in different years. Earnings persistence itself requires forward-looking observations. Studies restricted to contemporaneous associations may therefore miss delayed benefits or transitional losses. Event-time analysis, distributed lags, and multiyear post-investment outcomes would be useful. The relevant time horizon may also differ between process automation and the commercialization of research-intensive products.

Finally, contradictory effects deserve direct investigation. Easier finance may increase leverage and project risk; advanced systems may improve reporting while revealing genuine earnings instability; automation may reduce costs but raise depreciation and dependence on specialized vendors. Researchers should test such competing mechanisms rather than assume that every digital outcome must improve simultaneously. Comparisons across manufacturing subsectors, ownership categories, firm sizes, and regions would be particularly valuable. A well-designed study should report null and adverse effects as carefully as positive ones and should avoid describing correlations as causal mechanisms without appropriate evidence.

9. IMPLICATIONS FOR PRACTICE AND POLICY

For manufacturing managers, the principal lesson is to link digital investment to identifiable recurring sources of operating value. Technology programs should be assessed through productivity, defect rates, inventory turnover, working-capital needs, customer retention, and cash-flow outcomes, not solely through software expenditure or the number of systems deployed. Financing maturity should correspond to implementation and payback periods. Management should also document transitional costs and separate one-time gains from improvements expected to recur.

For financial institutions, digital data can improve assessment of manufacturing firms, particularly where conventional collateral information is incomplete. Yet responsible credit decisions still require examination of project economics, indebtedness, and repayment capacity. A digital channel does not make a weak investment sustainable. For auditors and investors, reported digital transformation should invite questions about system integration, data governance, controls, and the distinction between operational improvement and accounting presentation. More transparent reporting can be valuable even if earnings remain exposed to economic volatility.

For policymakers, broadening digital financial inclusion and supporting industrial upgrading are potentially complementary goals. The value of these policies should be assessed not only through credit growth or technology adoption, but through longer-run productive capacity and financial resilience. Attention to small and private manufacturers may be warranted where financing frictions are pronounced, while cybersecurity, transparency, and prudential safeguards remain necessary. The evidence reviewed here supports cautious policy experimentation and evaluation rather than a presumption that digital expansion guarantees persistent corporate earnings.

10. CONCLUSION

Digital finance, digital transformation, and earnings persistence belong to connected but distinct fields of inquiry. Existing research offers meaningful evidence that digital finance can ease financing constraints and support innovation, including in Chinese manufacturing, and that enterprise digital transformation can improve aspects of financial reporting and information quality. Foundational accounting research explains why recurring cash flows and reliable accruals matter for the continuation of earnings. The full relationship among these elements, however, has not been established simply by placing the separate findings side by side. This review proposes that earnings persistence may be influenced through investment continuity, productive digital capabilities, and reporting reliability, with possible adverse effects arising from financial risk, implementation failure, and

managerial discretion. Its central conclusion is conditional: digitalization is most likely to support dependable earnings when financing is allocated productively, technologies are organizationally integrated, and reporting faithfully represents economic performance. Future research should test these mechanisms directly with longitudinal manufacturing data and clearly differentiated measures of profitability, reporting quality, and earnings persistence.

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