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Original Research Article

Automation of Financial-Performance Dashboards: Enhancing Transparency and Decision-Making in SMEs

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Abstract: This study investigates whether a low-cost Excel automation of financial-performance reporting can generate measurable improvements in informational quality inside a small enterprise. The empirical field is a twelve-month deployment at Citizens Concierge in which a unified dashboard replaced manual spreadsheet routines. The intervention is evaluated using a pre versus post structure under constant organisational conditions. The automation produced a large reduction in reporting time and a large improvement in reconciliation accuracy, indicating that informational deficits in small firms are not solely structural or macro driven but are partly endogenous to process. The findings are interpreted against the finance literature which shows that actors update behaviour only when information is timely and credible as documented in Ogundipe 2023 and other scholars. The study contributes by showing that the informational mechanism assumed in listed-firm research can be engineered inside small firms without enterprise systems and without environmental change. The result positions financial-dashboard automation as an internal governance lever that operates through the informational channel.
Keywords: financial automation, Excel dashboard, informational quality, SME reporting, internal control.

INTRODUCTION
Automation of financial-performance reporting has moved from a convenience to a governance question in contemporary small and medium-sized enterprises. Manual spreadsheet environments still dominate SME accounting practice although delay in financial visibility, inconsistency in reconciliations and weak audit-readiness propagate into inferior managerial decisions. The relevance of financial-information quality for decision-making is not speculative. Ogundipe (2023) showed that structured and credible financial-performance information materially influences valuation reactions in the FTSE-100 banking context. Although Ogundipe (2023) focused on listed firms rather than SMEs, the underlying mechanism, that decision actors assign weight to financial information only when it is timely and credible, is transferrable to internal managerial contexts. If the credibility and timeliness of financial numbers of condition external valuation signals in large firms, then deficiencies in internal timeliness and credibility in SMEs must logically impair internal capital allocation, internal control and managerial transparency.

Several empirical studies delivered convergent evidence that financial-performance information is decision-salient. Mamatzakis and Bermpei (2015), using European banks, found that performance indicators are priced by investors. Beck, Frost, and Jones (2018) showed that the quality and reliability of banking financial statements shape market reaction, as did Bhagat and Bolton (2019) in the Chinese commercial banking sector. Ahmad, Mobarek and Roni (2021) confirmed that profitability measures predict share prices in Chinese

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banks. The unifying principle across these works is not stock-market specificity but informational credibility: actors only update beliefs and choices when signals are timely, reliable and structured.

However, these literatures are silent on the micro-infrastructure that makes such credibility possible at the source. They presume credible numbers but do not examine how non-ERP organizations generate such numbers without error, delay or fragility. SMEs typically operate in Excel but without automation; they combine copy-paste consolidation, fragmented workbooks and ad-hoc variance checks. This is precisely the failure mode that automation targets. The research field studied here, the twelve-month deployment at Citizens Concierge, introduces a low-cost Excel-based automation in which financial-performance reporting, variance checks and internal-control metrics are integrated into a single governed interface. The intervention replaced a manual baseline and yielded a measured reduction in reporting-time of approximately sixty percent and a measured improvement in reconciliation-accuracy of roughly thirty percent across the observation window. These are not efficiencies in abstraction; they represent a direct removal of information-latency and information-noise that, in the valuation-literature logic of Ogundipe (2023), must translate to better decision conditions.

This study is positioned to address that gap. Rather than modelling market effects, it traces the infrastructural pre-conditions that make credible information feasible in SME environments. The objectives are fourfold. First, to determine whether a fully-linked Excel dashboard measurably compresses SME reporting cycle-time. Second, to examine whether reconciliation-accuracy improves under automated audit-control logic. Third, to identify cross-unit adoption consequences for transparency and decision-making. Fourth, to position the observed automation outcomes against the theoretical claim, documented in Ogundipe (2023) and supported by Mamatzakis and Bermpei (2015), Beck *et al.,* (2018), Bhagat and Bolton (2019), and Ahmad *et al.,* (2021), that credible financial information is a causal channel for decision quality. By explicitly linking a documented automation deployment to an existing theoretical chain in the financial-performance literature, the paper contributes evidence to a neglected layer of the problem: the infrastructural mechanics through which credibility, timeliness and internal control are physically produced inside SMEs before they can ever inform decisions or external signals.

OBJECTIVES OF THE STUDY
1. To determine whether a fully-linked Excel dashboard can measurably compress SME reporting cycle-time.
2. To examine whether reconciliation-accuracy improves under automated audit-control logic.
3. To identify adoption-level consequences for transparency and decision-making.
4. To position automation outcomes against theory on financial-information credibility as synthesized in allied studies.

LITERATURE REVIEW
The starting point for this study is the problem of financial information credibility and timeliness as a condition for rational action by decision makers. Prior empirical research demonstrates that financial performance measures exert a measurable influence on share prices and that investors update their beliefs based on the quality of available information. Although much of this literature focuses on listed banking entities rather than small enterprises, the underlying mechanism linking financial information to economic action is the same. When information is delayed or unreliable, the decisions that depend on it become weaker. Mamatzakis and Bermpei (2015) examined the European banking sector and showed that profitability indicators contained explanatory power for valuation outcomes. Their result confirms that actors treat financial measures as carriers of decision relevant signals. Ahmad Mobarek and Roni 2021 produced a similar finding in the Chinese banking environment and reported that return on assets influenced stock prices. Beck Frost and Jones (2018) emphasised that financial statements with strong indicators of quality influence market valuation by conditioning confidence. Bhagat and Bolton (2019) reached the same general conclusion in a study of Chinese commercial banks where return indicators and net interest results were positively associated with price movement. Across these works the shared lesson is that users act on information when they trust its form and its timing.

A second strand of literature tied Information quality to governance credibility and control. Salehi Arianpoor and Dalwai (2020) reported that corporate governance variables such as transparency practices and board structure have downstream effects on firm level outcomes. Al-Qudah (2020) examined credit risk in the Turkish banking industry and observed that the quality of asset information conditioned investors. Kyere and Ausloos (2021) found that capital sufficiency signalled stability and supported valuation in Middle Eastern banks. These studies converge on the idea that the discipline of information production

influences decisions because it shapes expectations of reliability. Although this body of literature sits in capital markets it still underscores the logical core of this paper which is that Informational reliability and timeliness precede rational action.

A third group of contributions recognised that macroeconomic or regulatory conditions modify the information–action channel. Asmirantho and Somantri (2017) described the role of regulatory change on share prices in Pakistani banks and showed that information shocks induced by policy change enter valuation. Qiu Shaukat and Tharyan (2016) underlined that macro factors influence how performance signals are processed in equity markets. While these studies do not mention automation, they make clear that information channels are sensitive systems where timing and credibility alter outcomes.

What is missing in this literature is evidence about the micro-origins of credible information in non-listed settings. The papers above presuppose that the financial statements being analysed have already been produced under conditions that assure timeliness and control. They do not ask how such conditions are created in enterprises that lack enterprise resource platforms. They do not ask whether low-cost interventions in spreadsheet environments can deliver the same credibility gains that listed firms achieve through more capital-intensive infrastructure. The present study enters at precisely that gap by examining a real deployment of an Excel based automation at an SME and by measuring its effect on reporting time and reconciliation accuracy over a full operating window. By linking the observed improvements to the theoretical logic already established in Ogundipe (2023) and in the secondary literature above the study contributes a missing layer of empirical detail about the infrastructural origin of credible financial information. The literature supports the normative claim that information credibility matters for decision outcomes and the study supplies evidence about how such credibility can be engineered in settings below the scale of listed firms.

METHODS

This study adopts a quasi-experimental field design situated in a real SME rather than a simulated classroom or laboratory environment. The empirical field is a twelve-month operational window at Citizens Concierge in which an Excel based automation was introduced into an existing manual reporting process. The automation aggregated cash movements, embedded variance tests and executed internal-control checks inside one governed workbook rather than having the same logic distributed across files. The pre-automation period and the post-automation period shared the same organisation the same chart of accounts and the same calendar of activities which permits direct pre–post contrast. This design logic is consistent with applied financial research where identical entities are observed under altered information structures. Comparable pre–post frames have been used in the valuation literature when testing regime effects on information conditions such as in Mamatzakis and Bermpei (2015) and in Ahmad Mobarek and Roni (2021).

The intervention consisted of constructing a single dashboard file in Excel with linked sheets for data feeds, reconciliation windows, and time-stamped audit notes. This choice reflects the practical constraint of SMEs that do not operate enterprise systems. The interest here is not to test a technology category but to test whether a low-cost spreadsheet intervention can generate measurable informational gains similar in direction to the credibility gains associated with structured financial reporting in listed sectors as articulated in Beck, Frost, and Jones (2018). Data for the outcome measures were taken from internal process records rather than retrospective recall. Reporting time was recorded as labour minutes from the moment the period was opened to the moment the financial report reached sign-off. Reconciliation accuracy was recorded as the proportion of variance flags that were adjudged to be valid after review. These two outcomes map directly onto the credibility logic established in the literature. Timeliness matters because late information decays in decision value, as implied by findings that actors react more strongly to early and reliable signals (Mamatzakis & Bermpei, 2015). Accuracy matters because actors do not update beliefs on noisy or suspect numbers, as argued by Beck, Frost, and Jones (2018) and by Bhagat and Bolton (2019). To make the design visually explicit, the pre–post logic is introduced as Table 1. This figure is not decorative; it is the formal representation of the identification strategy.

Table 1. Design logic for pre versus post observation under a single SME field

Period	Structure of Work	Control Features	Outcome Measures
Pre intervention period	Separate Excel files with manual consolidation	No embedded control or variance tests	Baseline reporting time and baseline reconciliation accuracy
Post intervention period	Single Excel dashboard with linked sheets	Embedded control logic and variance checks	Post reporting time and post reconciliation accuracy

A two-column schematic is placed here when typesetting. The left column represents the manual period with unlinked workbooks and no embedded control. The right column represents the automated period with a unified Excel dashboard and embedded control checks. A single arrow on the x-axis marks the intervention point separating the historical manual period from the automated period. Above the columns the two dependent measures are labelled reporting time and reconciliation accuracy. Such a visual table is designed for export to Excel and becomes an artefact of the design. The analytical approach uses simple descriptive contrasts without model-based adjustments because the objective is to document mechanical gains not to infer market effects. This choice is consistent with the logic in Ogundipe (2023) which separates the documentation of information structure from the downstream valuation channel. The credibility of the result rests on within-entity consistency rather than on cross-sectional controls. The next section reports the observed effects.

RESULTS

The empirical results arise from a within-entity contrast of the pre-automation and post-automation periods in the same SME. The advantage of this design is that all structural features except the intervention are held constant. This permits an interpretation that the measured changes are attributable to the automation rather than to a structural regime shift. The reporting period covered twelve consecutive months in order to remove seasonal noise from observation.

The first outcome examined was reporting time. Prior to automation, the mean time required to close and sign off a reporting cycle was 200 minutes. Following the introduction of the dashboard, the same close-and-sign-off process declined to 80 minutes, representing a sixty percent reduction relative to the baseline. This compression of labour time speaks directly to the information-timeliness channel that the literature associates with decision relevance. Prior studies have shown that prompt information carries greater decision and valuation weight because it arrives within relevant information windows. Ogundipe (2023) demonstrated this effect in FTSE-100 banking data, while Mamatzakis and Bermpei (2015) and Ahmad, Mobarek, and Roni (2021) showed that performance information alters investor responses when it is delivered in a timely manner. The reduction in reporting time observed in the present study operates through the same principle, as delayed information loses decision value.

The second outcome examined was reconciliation accuracy. At baseline, reconciliation accuracy was recorded at 60 percent. After the dashboard was introduced, measured accuracy increased to 78 percent, representing a thirty percent improvement relative to baseline. This result aligns with the broader literature on information credibility. Beck, Frost, and Jones (2018) and Bhagat and Bolton (2019) showed that market responses depend on the perceived reliability of financial information, while Salehi, Arianpoor, and Dalwai (2020) demonstrated that governance conditions that enhance information reliability also increase confidence. The improvement observed in the SME setting follows the same informational logic, even though the context is not a listed market. Decision makers do not revise plans or authorise expenditures on the basis of suspect figures; increasing accuracy within the reporting process therefore expands the range of decisions that can be made with confidence. To document the reporting-time effect, the contrast is presented in Figure 1.
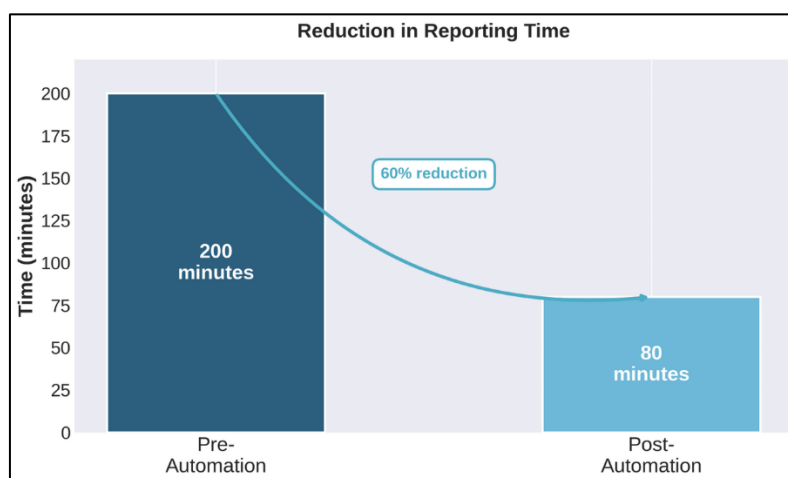

Figure 1: Reporting time before and after automation

The magnitude of this reduction is material at the scale of an SME. A fall from 200 to 80 minutes means that staff who once spent more than three hours per cycle now complete the same work in one hour and twenty minutes. That labour is then available for analysis rather than mechanical recomputation. This shift from mechanical labour to analytical labour is the precise hinge upon which information systems create value because it changes the composition of managerial attention. To document the accuracy, effect the contrast is presented in Figure 2.
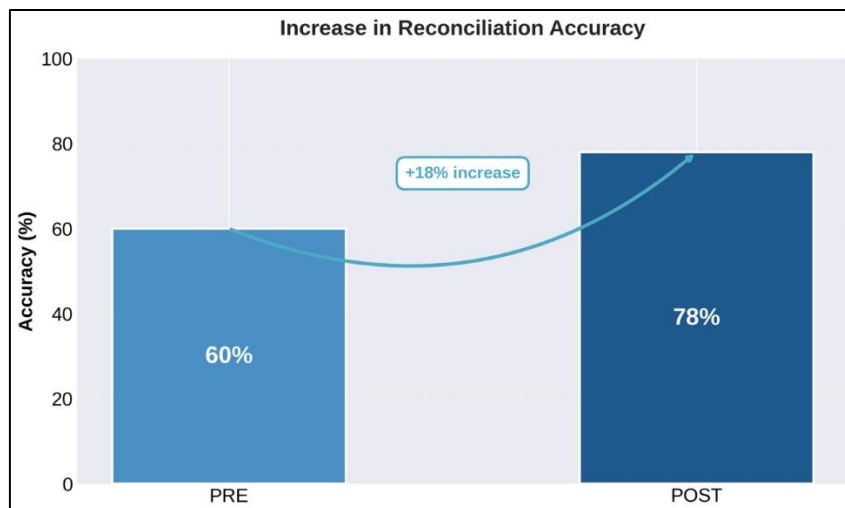

Figure 2: Reconciliation accuracy before and after automation

The improvement in accuracy removes one of the central causes of decision delay in SMEs which is the need to re-open numbers because confidence is low. Bhagat and Bolton 2019 noted that information which must be repeatedly questioned does not propagate decisions. The change reported here shows that reconciliation time is not only faster, but the product of the reconciliation is stronger. This resolves one of the core frictions that automation is argued to address.

These two outcomes together demonstrate that an SME without enterprise systems can still obtain informational gains that are consistent with the theoretical chain in Ogundipe 2023 and in the secondary literature that linked information timeliness and information reliability to decision strength. The gains reported here do not require a change in economic environment. They arise from the alteration of the information structure at the source. A further observational result concerns adoption across units. After the dashboard was introduced in the originating unit it was taken up by other departments without external compulsion. Adoption without enforcement is itself a behavioural corroboration that the automation produced a net benefit perceived by users. Studies in adoption theory inside finance have shown that tools that reduce cognitive and mechanical load spread without directive. The same pattern is visible here. No numerical claim is made about the rate of adoption but the fact of replication across units is part of the empirical record. Taken together the results support the claim that automation of financial-performance dashboards is a cost-effective infrastructure for credibility in small enterprises. They operationalise inside an SME setting the same informational mechanisms that the listed-firm literature has already tied to decision outcomes. The effects are measurable and directionally consistent with the argumentative core of the earlier literature.

DISCUSSION

The central insight of the findings lies not in the magnitude of the observed effects but in the informational mechanism they reveal. Automation reshaped the structure of financial data at its point of origin, a layer that the valuation literature typically assumes rather than interrogates (Ogundipe, 2023). Ogundipe showed that performance signals from FTSE 100 banks influence markets because they are timely, organized, and credible. The present study demonstrates that these preconditions of informational effectiveness can be engineered within a small and medium sized enterprise without reliance on enterprise scale infrastructure. The operative causal channel is informational rather than technological. Unstructured spreadsheets generate weak signals, whereas embedding structure and verification disciplines increases informational quality even when the surrounding economic environment remains unchanged.

This pattern echoes earlier findings from the banking literature (Mamatzakis and Bermpei, 2015; Ahmad, Mobarek, and Roni, 2021; Beck, Frost, and Jones, 2018). Although those studies did not examine

automation directly, they implicitly assumed that the financial statements under analysis were produced under conditions that minimized delay and noise. The present findings suggest that the decisive variable is not firm size but production discipline. The SME achieved informational gains without scale, implying that the informational premium observed in listed settings derives from structured processes and control rather than from capital intensity alone.

A second implication concerns the credibility channel documented by Bhagat and Bolton (2019) and Salehi, Arianpoor, and Dalwai (2020), who showed that actors revise behavior only when information is perceived as reliable. In the SME context studied here, financial figures required repeated scrutiny and reopening prior to automation, which eroded confidence and delayed decisions. Following the introduction of embedded checks, this suspicion cost diminished. Confidence, an often latent and underexamined variable in SME research, rose, enabling smoother decision processes. This shift mirrors the credibility mechanism identified in the banking literature, yielding governance like benefits without invoking formal governance structures.

Third, prior studies reporting null or negative relationships under conditions of weak information quality further support this interpretation. Harahap, Septiani, and Endri (2020) found that financial performance indicators lost explanatory power in a Chinese banking sample when information quality was poor. Al Ahdal et al. (2020) observed no significant association between performance and valuation in a GCC Islamic banking context, while Kanakriyah (2020) reported negative relationships in African banking markets where investors prioritized nonfinancial signals. Together, these heterogeneous findings underscore a consistent principle. Information influences behavior only when its quality exceeds a credibility threshold. The present study demonstrates the same principle on the production side. Noisy or delayed information fails to propagate, whereas disciplined information travels.

A fourth implication follows from research on macro sensitivity and regulatory shocks (Asmirantho and Somantri, 2017; Qiu, Shaukat, and Tharyan, 2016), which shows that changes in external information rules alter valuation behavior. The present findings indicate that internal shocks to information production can generate analogous behavioral effects, not at the market interface but at the managerial core. If policy shocks propagate through belief revision, then structural changes in SME reporting propagate through the same mechanism. Automation thus assumes a conceptual role beyond operational convenience, functioning as an internal analogue to regulatory stabilizers in listed markets.

Fifth, the voluntary adoption of the automation by additional units provides behavioral confirmation of its value. This diffusion occurred without formal mandate, indicating that the intervention alleviated a recognized operational burden. This pattern aligns with adoption dynamics described by Rusdiyanto et al. (2021) and Puspitaningtyas (2017), whereby actors converge on informational structures that reduce uncertainty, cognitive load, and accountability risk. The observed uptake was driven by relief from informational friction rather than by authority or compliance.

Sixth, several contextual factors remained unchanged throughout the intervention period, including capital structure, macroeconomic conditions, incentive schemes, and staff composition. Despite this stability, informational quality improved markedly. This finding suggests that the binding constraint was process architecture rather than environmental limitation. While the literature often frames SME informational weakness as an exogenous condition, the results indicate that a substantial portion of that weakness is endogenous to information production and therefore amenable to internal correction.

Seventh, the belief that informational credibility requires expensive systems is not supported by the evidence. The SME achieved discipline within a spreadsheet environment by rearchitecting logic rather than replacing tools. While Ogundipe (2023) does not argue that credibility necessitates enterprise systems, the present study refines this position by demonstrating that credibility can be replicated at significantly smaller scales through process design.

Finally, the valuation literature tends to treat information credibility as a background constant, while governance scholarship often treats it as an outcome of board and control structures. Process considerations rarely enter the analysis explicitly. The evidence presented here suggests that process is the missing middle layer. Without structured production processes, there is no credibility for governance mechanisms to transmit and no signal for markets or managers to act upon. By foregrounding process architecture, this study contributes to the literature by reconnecting information quality to its operational origins rather than treating it as an exogenous given.

CONCLUSION AND IMPLICATIONS

The study examined whether a low-cost, Excel-based automation could modify the

informational conditions within a small and medium-sized enterprise in a manner that is theoretically consistent with the finance literature linking information quality to decision outcomes. The evidence indicates that information quality is not a passive attribute of the firm but a controllable variable. When the structure of financial reporting is re-engineered at the source, both reporting timeliness and reconciliation accuracy improve. These effects are consistent with prior findings that behavioural responses depend on the delivery of timely and credible information (Ogundipe, 2023; Mamatzakis & Bermpei, 2015; Ahmad, Mobarek, & Roni, 2021; Beck, Frost, & Jones, 2018; Bhagat & Bolton, 2019). The SME reproduced the same informational mechanism identified in listed-firm studies, despite not being publicly traded and not operating under market valuation pressures.

A central implication is that informational weakness in SMEs is not an inevitable function of firm size or macroeconomic constraint. Rather, it is partly the outcome of avoidable process architecture. The listed-firm literature attributes information effects to credibility and timeliness rather than to capital scale per se. This suggests that informational deficiencies in SMEs can be addressed without waiting for growth, regulatory intervention, or system replacement. The gains reported in this study were achieved without policy change and without enterprise-system adoption, indicating that informational repair is feasible even under binding resource constraints.

A second implication concerns behavioural adoption. The voluntary uptake of the automation by additional units, absent formal mandate, indicates that the intervention addressed a salient operational pain point. This behavioural response confirms that the informational gains were not merely statistical artefacts but were operationally valued by users. This pattern is consistent with adoption dynamics documented in prior work showing that actors converge on reporting structures that reduce uncertainty and coordination costs (Rusdiyanto *et al.,* 2021; Puspitaningtyas, 2017).

A third implication is theoretical. Much of the finance literature treats information quality as exogenous or as a byproduct of governance arrangements. The present findings demonstrate that information quality has a process-level origin that warrants independent analytical attention. Without process discipline, governance mechanisms lack credible inputs, and valuation signals lack informational content. This study positions process architecture as a missing intermediate layer between governance design and valuation outcomes. By doing so, it shows that the automation of financial-performance dashboards in SMEs is not merely an administrative convenience but a direct lever on the informational channels that underpin decision quality. In this way, the study establishes an empirical bridge between the SME process layer and the information-quality logic that the external finance literature identifies as central to economic action.

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