

Digital reporting reforms and the reorganization of accounting work

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1. Introduction

A Monday afternoon like many others. It is the end of the reporting cycle, and the accounting office is quiet in a tense way. Screens glow late into the evening. An accountant hesitates before clicking “submit,” knowing that once the file leaves her workstation, it will travel instantly through validation systems, dashboards, and audit platforms beyond her control. The fear is familiar: sending wrong numbers, missing an inconsistency, or discovering an error after the deadline has passed and correction is no longer possible.

In Brazilian local governments, this moment condenses what public sector accounting work has increasingly become: an exercise in visibility, responsibility, and exposure under permanent institutional scrutiny (Lino et al., 2022).

This essay looks at a few years of reporting reforms in Brazilian local governments as a case of sociomaterial work transformation driven by cumulative regulation and digitalization, under the coordination of the federal fiscal authority (Aquino et al., 2021). At the heart of this shift is XBRL, the Extensible Business Reporting Language, a digital standard that does not simply change the format of financial reports but prescribes how information must be structured, tagged, read, and processed by machines. Beginning in the mid-2010s, and intensifying after the National Treasury released its XBRL financial reporting taxonomy for the 2015 fiscal year, local governments were progressively required to abandon spreadsheet-based templates and manual submissions in favor of machine-readable datasets embedded in Financial Management Information Systems.

Before this transition, reporting work was largely performed by local accountants who relied on spreadsheets, printed textbooks, or accounting ledgers as visible workspaces. They manually consolidated data, cross-checked balances, compared figures across periods, and relied on accumulated knowledge to identify inconsistencies. Judgment was exercised through visual inspection and iterative correction, and responsibility was anchored in the ability to explain how numbers had been produced and reconciled. With the introduction of XBRL-based reporting, these activities were gradually absorbed into automated routines embedded in software systems. Validation rules, consistency checks, and classifications were no longer enacted through visible manipulation of data, but through algorithmic processes that operated largely out of sight. Accountants' work shifted toward configuring systems, mapping charts of

accounts, uploading files, and responding to error messages or rejection alerts generated elsewhere.

This transformation brought clear advantages. Reporting became faster, more standardized, and scalable across thousands of local governments. Data could circulate easily between institutions, supporting large-scale oversight, fiscal statistics, and comparative analysis nationwide. At the same time, it introduced significant trade-offs. Visual access to underlying data was reduced, opportunities for local intervention narrowed, and the capacity to trace how specific figures were generated became more limited. As a result, professional judgment was displaced, from shaping accounting representations to managing compliance with automated systems.

The Brazilian experience illustrates that reforms aimed at transparency and control do more than improve information flows. They may reorganize what becomes visible, who can act, and how professional judgment is exercised in everyday accounting work. In this sense, accountability is not only regulated but materially produced through digital infrastructures, with implications that travel beyond the Brazilian context.

Public sector accountants operate in organizational environments shaped by overlapping accountability regimes, dense regulation, and limited discretionary space (Grossi & Argento, 2022). Positioned at the intersection of internal administrative routines and external demands imposed by federal authorities, Courts of Accounts, and other oversight agencies (Aquino et al., 2021; 2022), they remain legally responsible for the accuracy, completeness, and timeliness of the information submitted. Even as reporting becomes increasingly automated, legal accountability continues to rest with the professional: errors detected ex post may trigger audit findings, requests for clarification, sanctions, or reputational consequences, regardless of whether they originate in automated routines or system configurations. Beyond this formal responsibility, accounting work in the public sector also carries a social responsibility, as reported data underpin fiscal transparency, public decision-making, and trust in government action. Digital reporting reforms, often presented as technical solutions to delays, inconsistencies, and fragmentation (Azevedo et al., 2020), thus do more than promise efficiency and control. Yet, from the perspective of those who perform the work, these reforms do not simply streamline reporting. They reorganize it.

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Empirical studies on digital transformation in public sector accounting and auditing further indicate that such systems often move professionals away from direct engagement with data toward supervisory, validation-oriented forms of work, altering how judgment, responsibility, and expertise are enacted (Buffat, 2015; Carlsson-Wall et al., 2022; Aquino, 2022; Yigitbasioglu, Green & Cheung, 2022). Importantly, artefacts do more than enable or constrain action. They also structure how work becomes perceptible, intelligible, and legitimate in practice. Technologies discipline practice by structuring attention, sequencing tasks, and stabilizing patterns of action, while also being reshaped through use and local experimentation (Labatut, Aggeri, & Girard, 2012).

Artefacts not only afford action but also structure regimes of perception through which accounting work becomes intelligible, accountable, and professionally meaningful. In this sense, artefacts organize not only what accountants do, but how they perceive, interpret, and justify their work within accountability regimes, shaping the visual and symbolic conditions under which professional judgment is exercised (de Vaujany & Vaast, 2016).

Taking Brazil as an example, the mandatory adoption of XBRL-based digital reporting infrastructures marks a particularly consequential moment in this reorganization. Over several years, accountants have transitioned from spreadsheet-based reporting practices toward automated systems embedded in Financial Management Information Systems and centralized validation platforms (Neves, 2020). This reform does not merely introduce new tools, but shifts how accounting work is seen, how it unfolds, and how accountability is enacted. What changes is not only *what* accountants do, but *how* they relate to accounting representations, to systems, and to their own professional responsibility.

This essay asks a single guiding question and keeps it at the center throughout: *How do digital reporting reforms reorganize public sector accounting work by transforming the visual and sociomaterial foundations through which accountability is enacted?*

Rather than treating digital reporting as a technical upgrade, the essay approaches it as a sociomaterial transformation, one that reshapes visibility, judgment, and agency in everyday work. At the end, this is a case of how digital regulatory infrastructures reorganize professional work through sociomaterial and visual reconfigurations.

2. Spreadsheet versus XBRL: an empirical contrast at the core of the argument

The contrast between spreadsheet-based and XBRL-based reporting offers a concrete empirical lens to observe this transformation, which seems to be very subtle. In spreadsheet environments, accounting work revolves around a visually accessible artefact. Tables, formulas, and cross-checks are laid out in front of the accountant. The spreadsheet functions as an *image-object* (de Vaujany & Vaast, 2016): a material representation that invites prolonged visual engagement, manipulation, and interpretation. Accountants work through numbers iteratively, tracing relationships between accounts, simulating corrections, and stabilizing datasets over time.

This visual engagement is not incidental. It sustains ritualized practices of verification. Printing reports, comparing columns, checking balances line by line, and re-entering values are not experienced merely as manual burdens, but as moments where confidence and authorship are built. Judgment is enacted through seeing and re-seeing the numbers. Accountability is anchored in having worked through the representations and being able to explain how the figures were produced.

XBRL-based reporting, on the other hand, reorganizes this experience. Reporting is no longer composed or validated through a visible object, but generated through automated routines embedded in digital infrastructures. Accountants now interact with interfaces that display alerts, error messages, and confirmation screens. The dataset itself often remains invisible. What matters is whether the system accepts the file. The visual object dissolves, and the screen becomes the primary mediator of accountability. Empirically, accountants describe this shift as both efficient and unsettling. Validation routines are faster and more standardized, but the loss of visual access makes it difficult to understand how outputs are produced, and now they rely on an *image-screen* regime (de Vaujany & Vaast, 2016). Errors appear as codes rather than as traceable inconsistencies. When problems arise, intervention is indirect: interpreting feedback, waiting for system updates, or contacting software vendors. Reporting work becomes less about shaping representations and more about *managing* system responses.

These two arrangements do not represent different tasks, but *two sociomaterial configurations of the same reporting practice*. What changes is how agency, judgment, and responsibility are distributed between humans and artefacts.

3. Visual regimes, accountability as feedback, and the disappearance of the object

To understand what is at stake in this transformation, it is necessary to take visibility seriously as an organizing

dimension of accounting work. Sociomaterial research has long emphasized that work is not only done through artefacts, but also made visible and legitimate through them (Leonardi, 2011; Barley, 2020). de Vaujany and Vaast's (2016) distinction between *image-object* and *image-screen* regimes provides a powerful lens here.

The distinction between image-object and image-screen regimes can be understood as an institutional reconfiguration of accountability. In the **image-object regime**, artefacts function as stabilizing institutional anchors. The spreadsheet, the printed report, or an accounting ledger of an information system screen is not only a representation but a durable object around which professional stewardship crystallizes. Accountability is enacted through slow, ritualized practices of inspection, comparison, and reconciliation. These practices are social and institutional as much as material. Looking over the numbers, tracing their relationships across columns, checking totals against prior periods, and resolving discrepancies are recognized professional acts. They signal competence, diligence, and care. Responsibility is anchored in *having seen*, *having checked*, and *being able to narrate* how the numbers came to be. Over time, these artefacts stabilize expectations about what "good accounting" looks like and who can legitimately speak for the figures. The institution recognizes judgment because it is visibly enacted through shared material routines.

By contrast, the **image-screen regime** reorganizes accountability at an institutional level by decoupling responsibility from visual engagement. Here, legitimacy no longer emerges from prolonged interaction with accounting representations but from successful passage through automated procedures and computational assessment. The screen does not stabilize meaning over time in the same way; it mediates immediacy, circulation, and compliance. In this configuration, professional practice is shaped by what has been described as *algorithmic institutionalism*, in which institutional rules are embedded in technical systems and enacted through automated routines rather than professional judgment (Mendonça, Filgueiras, & Almeida, 2024). Acceptance messages, alerts, and confirmations become the primary institutional signals that work has been done correctly. What matters is not whether the accountant has worked through the numbers, but whether the system has accepted the file. Accountability is thus compressed at the push of a couple of buttons. It becomes faster, more standardized, and easier to audit at scale, but also more opaque from the standpoint of professional sensemaking.

This iconographic transformation is closely intertwined with changes in how artefacts afford action, as defined by Davis and Chouinard (2017) and Davis (2020). In the

spreadsheet-based configuration, artefacts predominantly *request* and *encourage* action. Open cells, visible formulas, and familiar layouts invite accountants to explore data, identify inconsistencies, and project corrective actions. These affordances support constructive discretion and sustain a sense of authorship over reporting outcomes.

In contrast, XBRL-based reporting increasingly *demand*s compliance and *refuses* intervention. Systems demand submission in specific formats and timelines, while refusing access to underlying calculative processes. When inconsistencies arise, accountants are rarely able to act directly; instead, they must interpret error messages, wait for system updates, or rely on external technical support. Discretion persists, but it becomes reactive rather than generative, oriented toward responding to feedback rather than shaping outcomes.

This change is directly tied to automation's impact through the transition from spreadsheet-centered reporting practices to XBRL-based analytical infrastructure in Brazilian local governments (Neves, 2020). What I have observed is that certain functionalities gradually become *embedded* into software routines, making them no longer directly visible to accountants. Other functionalities are *reduced*, particularly those related to visual inspection and direct manipulation of raw data. At the same time, certain functionalities *expand*, especially automated validation and data standardization mechanisms. While these expansions enhance compliance and consistency, they do so by narrowing the range of actions that remain legitimate and feasible for professionals.

This extends existing literature in two ways. First, it shows that affordances are not static properties of technologies that afford or constrain actions (Davis, 2020), but might be dynamically reconfigured as functionalities are embedded, reduced, or expanded through automation. Second, it demonstrates that the redistribution of professional agency under automation is not only a matter of discretion being curtailed, but of discretion being reshaped through specific sociomaterial arrangements that privilege system authority over situated judgment.

This also may spark a debate regarding discretion in the context of automation. While some studies suggest that automation curtails discretion by embedding decision rules into algorithms (Buffat, 2015), others show that discretion endures in transformed forms (de Boer & Raaphorst, 2023). I suggest that discretion is not eliminated but displaced. Accountants remain responsible for interpretation and compliance yet lose the capacity to intervene meaningfully in core calculative activities. The

loss is not merely technical. When the visual object disappears, so does a key anchor for sensemaking. Accountants remain formally responsible for the results, yet their capacity to understand and explain how those results were generated is reduced. Accountability moves from a ritual grounded in visual judgment to a regime grounded in feedback. Trust is displaced from professional evaluation toward infrastructures.

4. Task stewardship as a sociomaterial condition

Under these conditions, accounting work increasingly takes the form of *task stewardship* (Krook, 2025). Automation does not eliminate professional judgment but displaces it. Accountants monitor system outputs, respond to alerts, coordinate corrections, and justify results produced by opaque routines. Agency becomes reactive rather than generative.

This displacement can be understood through an affordance-based lens. Digital reporting systems embed some functionalities within software routines, reducing direct control. Other functionalities are reduced, particularly visual access to raw data and charts of accounts, disrupting sensemaking. At the same time, some functionalities expand, notably validation, standardization, and data circulation. These shifts redistribute discretionary action from professionals to algorithms (Davis, 2020; Davis & Chouinard, 2017).

The idea of task stewardship captures this condition. Accountants remain accountable, but their work is oriented toward managing tasks produced by systems rather than constructing accounting representations themselves. This resonates with broader research on automation and discretion, which shows that professional agency often persists downstream of automated processes, albeit in transformed ways (Buffat, 2015; de Boer & Raaphorst, 2023; Aquino et al., 2022).

Seen from this perspective, digital reporting reforms are not a final stage, but part of a broader trajectory of automation. This development offers a powerful lens for interpreting the implications of emerging Generative AI tools (GenAI) for professional practice. The introduction of GenAI into reporting and analytical infrastructures might intensify the issues identified here. As interpretive and narrative capacities are layered onto automated systems, the risk is not the disappearance of accounting work, but its further displacement into opaque environments where visibility and intervention are limited. From a sociomaterial standpoint, GenAI should be understood as another participant in the reporting assemblage, one that amplifies existing tensions observed in XBRL-based reporting. As with automated validation routines, GenAI may increase opacity, compress decision

time, and distance professionals from underlying processes (Lee et al., 2025). At the same time, it opens new spaces for judgment, particularly in assessing plausibility, relevance, and institutional fit.

Complementing Haefliger's (2025) proposal to examine *how to study technology when the nature of work changes*, here we advance a symmetrical yet analytically distinct move in new ways to understand *how to study work when technology changes*. In my example, rather than taking technology as the primary object of inquiry, we hold the reporting practice constant and follow how accounting work is reorganized as digital infrastructures are introduced. This shift in analytical focus foregrounds work as an ongoing sociomaterial accomplishment, enacted through concrete artefacts, visual cues, routines, and feedback mechanisms. In doing so, we expect to respond directly to Haefliger's call to zoom into the "how" and "when" of work practices, but we reverse the lens. Instead of asking how new technologies materialize agency in general, we ask how specific configurations of technology recompose visibility, judgment, and responsibility within an established professional practice. This move allowed us to show that what changes is not only the interface or the speed of action, but the very conditions under which accounting work becomes intelligible, accountable, and legitimate. In this sense, my contribution aims to demonstrate that studying work under technological change requires sustained attention to what disappears, what becomes embedded, and what might be re-signaled through screens, alerts, and automated confirmations, as work is progressively reorganized around task stewardship rather than visual judgment.

The challenge for research and practice is therefore not whether automation will advance, but how sociomaterial arrangements can be designed to preserve meaningful judgment, visibility, and accountability. Studying accounting work as a sociomaterial practice provides a way to engage with this challenge empirically and conceptually.

5. Final remarks

This essay has shown that digital reporting reforms reorganize public sector accounting work by transforming its visual and sociomaterial foundations. By examining the transition from spreadsheet-based to XBRL-based reporting in Brazilian local governments, it demonstrates that what is at stake is not merely efficiency or standardization, but a reconfiguration of how accountability is materially enacted in everyday work. As visual engagement with accounting representations gives way to system-mediated validation, professional judgment is not eliminated but displaced, increasingly expressed

through reactive task stewardship rather than constructive engagement with data. These dynamics are grounded in a specific Brazilian regulatory and institutional context and should be interpreted accordingly.

At the same time, the Brazilian example invites systematic comparison. The sociomaterial reconfigurations identified here raise broader questions about how different regulatory environments, technological regimes, and institutional arrangements shape the visibility of work, the distribution of agency, and the enactment of accountability. Comparative and longitudinal research could examine whether similar shifts occur under other forms of digital governance, and how variations in institutional design, professional autonomy, and technological architecture mediate these outcomes. Such work would not only extend the empirical reach of this analysis but also refine sociomaterial approaches to studying work under conditions of cumulative regulation and automation.

Finally, I suggest that digital reporting reforms offer only a productive entry point for rethinking how openness and accountability are reassembled across contemporary bureaucratic and knowledge-intensive settings. The tension between expanding data circulation and constraining professional intervention is unlikely to be unique to public sector accounting. Fields such as public and private auditing, welfare administration, healthcare reporting, and academic evaluation increasingly rely on automated systems that open data to circulation while simultaneously closing work practices to interpretation, experimentation, and professional discretion. By foregrounding visual regimes, digital infrastructures, and task stewardship, future research can deepen our understanding of how work, judgment, and responsibility are being reconfigured in the name of transparency across diverse domains.

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