

Who is the misfit?

A case study of how temporality influences system (mis)alignment and
repair work in project control

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Abstract

This thesis explores how digital accounting systems are used in a project-based setting by examining the temporal conditions that shape system (non)use. Based on a qualitative case study of a Swedish construction firm, we draw on temporality research to analyze how organizational members perform and perceive time and their interaction with digital systems. Our findings show that systems *(mis)aligned* with the temporal realities of project life play a central role in system *(non)use*. This misalignment created a perceptual dichotomy: management viewed untimely employees as the *temporal misfits*, whereas employees experienced the systems as the *misfit*. We also find that system non-use triggered reliance on activity coordination and feedback cycles to realign system representations with unfolding events – compensatory work we conceptualize as *temporal repair*. We show effectiveness depends on timing: anticipatory repair enables control, reactive repair perpetuates dysfunction, and absent post-project repair erodes organizational learning. Together, these insights extend explanations for ERP (non)use and highlight the importance of temporal fit for effective control in project-based settings.

Keywords:

Temporality, ERP systems, Management control, Project-based organizations, Construction

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1. Introduction

One in every four kronor invested in the Swedish construction industry is wasted. Money, materials, and effort leak out of projects through errors, defects, delays, and rework, together costing more than SEK 100 billion annually (Boverket, 2018). These problems often begin before construction even starts. Two in five Swedish firms choose not to bid in the SEK 800 billion public procurement market because tenders prioritize “lowest price”, leaving too little margin or time for proper planning and coordination (Byggföretagen, 2023). Projects therefore enter the execution phase with tight schedules, thin budgets, and little room to pause, reflect, or learn. Boverket (2018) highlights that “lack of time and insufficient competence or resources” are the main causes of construction defects, further emphasizing a deficient lessons-learned loop: “the knowledge exists,(...) but it is not disseminated” (Boverket, 2018, p. 23). In no other industry is time as critical a resource as in construction. Work unfolds under intense time pressure and strict budgets, where any delay is costly. Construction companies operate as project-based organizations (PBOs) that are formed to solve complex client needs, notorious for having difficulties in coordinating resources across projects, achieving economies of scale, and facilitating company-wide technical development (Hobday, 2000; Lundin & Söderholm, 1995). Reflecting on these conditions, McKinsey & Company (2024) highlights that “[t]echnology uptake has been slow and is mainly focused on control rather than productivity”, making the role of digital accounting and control systems particularly relevant in understanding how a construction PBO attempts to manage these complexities.

In other streams of literature and professional business circles, digitalized accounting systems have been placed on a pedestal, often portrayed as tools capable of delivering totalizing control over the organization (Quattrone & Hopper, 2005). Enterprise resource planning (ERP) systems have promised to establish ‘techno-logics’ through which the organization should ideally function (Quattrone & Hopper, 2005; Dechow & Mouritsen, 2005; Beaubien, 2013). In advanced forms, big data and algorithms may know humans better than humans know themselves – a seeming dystopia that has led to the creation of some of the most valuable companies in the world (Quattrone, 2016). Despite the notion of almighty systems (Lowe, 2001), software is inherently neutral, guided by human agency in creation and use (Chua, 1995). So despite promises of real-time control, systems are often bypassed through workarounds (Dechow & Mouritsen, 2005) and hacks (Ciborra, 2000), inadvertently leading to feelings of *diminished* control (Quattrone & Hopper, 2005).

A parallel stream of literature has recognized that while PBOs employ formal controls like strict budgets (Veeken & Wouters, 2002; Themsen et al., 2025), information systems (Wei & Miraglia, 2017), detailed action plans (Carlsson-Wall et al., 2017), and digital reporting dashboards (Ronzani & Gatzweiler, 2022), these often fail to keep pace with project execution and distort information sharing. Hence, studies have problematized the overuse of formal controls, claiming that excessive reliance can erode project outcomes (Ronzani & Gatzweiler, 2022; Themsen et al., 2025) and find that PBOs tend to rely on informal control, communication, and improvisation during project execution (Peters, et al., 2018; Veeken & Wouters, 2002). Communication is therefore a crucial coordinating and feedback mechanism when formal controls, technologies, and time-scarce project conditions result in incomplete use of accounting representations (Jordan & Messner, 2012; Hall, 2010; Vollmer, 2007; Ahrens & Chapman, 2004; Dambrin & Robson, 2011; Jørgensen & Messner, 2010; Quattrone, 2009; Busco & Quattrone, 2015).

Technology has long served as a central organizing mechanism in society (Robson, 1992), but effective control emerges only when accounting systems and human agency align within their

organizational context (Dechow & Mouritsen, 2005). In our context – a project-based organization inherently bound to time and constantly facing temporal pressures – alignment is often strained, pushing managers to rely on informal communication that works momentarily but remains unscalable. Studying how technology can better support management control in a PBO – especially in the construction industry, which has lagged broader productivity gains – offers an ideal case for examining how and why technological controls and human agency clash or align.

Existing studies in these fields, with some exceptions (Nandhakumar & Jones, 2001; Beaubien, 2013), treat temporality as background context rather than as an active, constitutive force. To address these issues, we take inspiration from organizational research that treats time and technology as fundamental factors of organizational life (e.g., Orlikowski, 1992, 2000; Orlikowski & Yates, 2003; Ancona, et al., 2001; Ballard & Seibold, 2003). We specifically draw on Ballard and Seibold's (2003) Meso-Level Model of Organizational Temporality as our theoretical framework. This model identifies ten temporal dimensions; six enactments (flexibility, pace, separation, linearity, scheduling, precision) and four construals (present/future orientation, scarcity, urgency), that shape how organizational members perform and experience time, respectively. These dimensions interact with three communication structures: activity coordination, workplace technologies¹, and feedback cycles. The two elements are mutually constitutive: temporal dimensions influence communication patterns, which in turn reshape temporal experience. Ballard and Seibold's temporal model has not, to our knowledge, been applied within accounting literature, presenting an opportunity to analyze how accounting systems, feedback cycles, and coordination activities intersect with the inherent temporal limitations and dynamics within organizations. Accordingly, we ask the following research question:

How does temporal (mis)alignment between digital accounting systems and project work shape system (non)use and the management control practices that emerge in response?

To explore these theoretical concerns, we conduct a qualitative single-case study at a medium-sized Swedish construction PBO. We follow the project life cycle from start to finish by interviewing employees whose roles spanned its different phases. Through this process, we familiarize ourselves with more than ten digital platforms used to coordinate and structure project work as well as the informal, experienced-based, art of construction. Our joint analysis of interviews, a site visit, access to company systems, and informal observation give us an empirical ground to analyze how temporal structures influenced the use of accounting systems and the performance of management control.

This study makes two contributions. First, we broaden ERP and management control research by introducing temporality as an explanatory concept for system (non)use. Prior work has attributed adoption and circumvention patterns to design rigidity (Dechow & Mouritsen, 2005), political resistance (Quattrone & Hopper, 2005), technological drifting and hacking (Ciborra, 2000a, 2000b), and the persistence of habitual practices (Beaubien, 2013). Our findings add a distinct mechanism: *temporal (mis)alignment*. Our findings suggest that there is a persistent misalignment between “system time” and “project time”. Digital systems enacted linear, scheduled, and periodic temporalities that clashed with the non-linear, time-scarce and fast-paced rhythms of project work. When systems are (mis)aligned with project realities it leads to *(non)use*. We extend this finding to the management control literature by introducing the

¹ For the purpose of our study, we focus specifically on accounting systems which are within the category of workplace technologies

concept of *temporal misfit* – a disconnect where management views non-compliant employees as temporal misfits, while employees experience the *systems themselves* as the temporal misfit which is unable to match project work's unpredictable pace.

Second, we extend PBO control literature by theorizing *when* communicative controls can effectively substitute for weak formal systems. While earlier studies show that PBOs rely on minimal controls, improvisation (Peters et al., 2018; Carlsson-Wall et al., 2017), and communication when accounting representations fall short (Burchell et al., 1980; Hall, 2010; Vollmer, 2007; Dambrin & Robson, 2011; Busco & Quattrone, 2015), we add nuance by conceptualizing these practices as *temporal repair* – the compensatory communication work required when accounting systems fail to keep pace. We show that this repair hinges on activity coordination and feedback cycles, yet these are themselves time-intensive and thus constrained by the same temporal pressures that undermine system use in the first place. In practice, such compensating mechanisms were often activated only after problems had surfaced. As such, *when* controls are deployed matters just as much as which controls are used.

The remainder of this thesis proceeds as follows. Section 2 reviews the relevant literature. Section 3 outlines the methodology. Section 4 presents the empirical findings, followed by the discussion and conclusions.

2. Literature Review

Researchers interested in the intersection between sociology and accounting have acknowledged accounting as an increasingly influential tool in modern corporate management that “provides structure within which discourse could take place and through which action could be achieved” (Burchell, et al., 1980, p. 18). Hence, rather than being a mirror of an economic reality, accounting is a non-neutral tool that is inherently shaped by the context of the organization in which it used (Hopwood, 1983). Today, it's more important than ever to examine the role of accounting in the context of digitally native corporations whereby “a move towards a digital culture is said to revolutionize decision-making processes by altering the way in which knowledge is gained and actions are undertaken, with technologies and algorithms supplanting humans in the production and certification of knowledge, and in the making of decisions” (Quattrone, 2016, p. 119). In their literature review, Baxter & Chua (2003) claim that studying the sociology of accounting can help to understand the role of humans, advanced technologies, and accounting in modern corporations. Researchers have theorized that “[w]ithin this context [of digitalization], the postmodern practice of management accounting becomes an increasingly disembodied and fragmented experience; rewriting our sense of corporeality” (Baxter & Chua, 2003, p. 111). That is, will digital control through systems relinquish the need for human contact and interaction around corporate goals? This has prompted research interest in whether the digitalization will truly make management accounting wiser or not (Quattrone, 2016).

To better understand the interplay between accounting, technology, and humans researchers have studied advanced costing systems (Chua, 1995; Briers & Chua, 2001); accounting information systems (Lowe, 2001; Dechow, et al., 2007; Chapman & Kihn, 2009; Granlund, 2011); algorithmic management (Quattrone, 2016; McDaid, et al., 2023) and enterprise resource planning (ERP) system implementations (Quattrone & Hopper, 2005; Dechow & Mouritsen, 2005; Beaubien, 2013; Scapens & Jazayeri, 2003). In the following section, we will review the existing ERP literature – discussing technological control, human agency, and the

effectiveness of management control in a digital context. This will be followed by a discussion of project-based organizations (PBOs) – temporary organizations with highly complex products and services formed around a client’s specific need (Lundin & Söderholm, 1995; Hobday, 2000). While these organizations impose strict budgeting (Themsen, et al., 2025), general accounting controls (Veeken & Wouters, 2002), and detailed action plans (Carlsson-Wall, et al., 2017) these organizations tend to rely on informal control, communication, and improvisation during project execution (Peters, et al., 2018; Jørgensen & Messner, 2010; Veeken & Wouters, 2002; Hall, 2010). The study of technological control tools in the context of PBOs can give us a better idea of the role systems, humans, and communication play in creating successful management control practices.

ERP systems exerting incomplete ‘techno-logics’ of control

ERP implementations have been a popular topic of study in accounting literature because they are a digitally native technological control widely implemented since the 1990s. Furthermore, from an accounting perspective, these systems “are fundamentally bound up with organisational processes of accounting” (Chapman, 2005, p. 686). Dechow & Mouritsen (2005) even claim that “control cannot be studied apart from technology and context” (p. 691). In their study of two large Danish manufacturing firms implementing ERP systems, the authors find that the systems created a ‘*techno-logic*’, conditioning how control was exerted in the organization. The ERP system created technological path dependencies based on initial configuration choices. Therefore, while the ERP was implemented to gain global visibility it constrained some types of management control due to the “friction” caused by the limited “number of situationally specific conditions that the ERP systems could honour” (Dechow & Mouritsen, 2005, p. 728). In other words, the ERP system configuration was too rigid to align with and establish control over certain metrics and subsidiaries. For this reason, managers and employees alike were required to keep offline sheets for the consolidation of reports and for tracking specific metrics relevant for local subsidiaries.

Furthermore, the authors find that power within the organizations became dispersed because data generation in different parts of the firm created conflicting agendas. Since “SAP ERP systems separate strongly between an ‘accounting mode’ and a ‘logistics mode’” (p. 693) the locus of control distributed power away from the accounting function to operations, logistics, and IT which all had different and unique viewpoints of the organization. In this sense, the ERP system did not become a totalizing control mechanism for top management, rather control was continuously negotiated – fluid – depending upon which function or individuals could exert power through, or around, the system. This was especially exemplified in the workarounds that emerged in the blind spots between accounting and logistics modules which created “trading zones” where actors negotiated meanings and improvised solutions when the ERP’s formal categories failed to capture the complexities of everyday work. Hence, exerting control became a socio-technical accomplishment: the ERP provided a structure for visibility, yet it was the continuous human work of aligning system categories with practice that made control possible (Dechow & Mouritsen, 2005).

Humans and systems are co-dependent, the former offloads information and the latter stores, even executes on the information algorithmically (McDaid, et al., 2023). Lowe (2001) found that “people are ‘sucked in’ to the accounting system, either in the more conventional manner, because they are constrained to use the numbers the system reports, or more surreptitiously, because their own operational actions and activities are what contributes data to the system.” (p. 77). When human input is needed to make up the substance in an accounting system, the

extent in which workarounds are used can have profound impacts on how management control is enacted.

Chapman & Khin (2009) found, in a quantitative survey, that even when information system integration is high, it does not automatically lead to better operational performance. Rather, it was the usability of the information systems for the employees as well as the type of management control exerted that contributed to better performance. This was exemplified in the case of a Japanese MNO where the pre-existing strict hierarchy was reaffirmed by the ERP system and performance hardly increased (Quattrone & Hopper, 2005). At this firm, control at a distance was largely enabled due to the pre-existing institutional culture rather than the technology itself. This aligns with Chua's (1995) assertion that "it is people who make up accounting numbers in specific ways to try and achieve certain objectives. Software, by contrast, has neither interest nor agency" (p. 117). Chua's (1995) assertion strides against the idea that humans and technology are equally important, which is contested in later research. For example, at a US-based MNO, the ERP system acted more as a 'black-box' assuming full agency (Lowe, 2001) and creating chaos by redistributing control from headquarters to the subsidiaries ('peripheries') (Quattrone & Hopper, 2005). The implementation challenged managers' beliefs of how control should be exercised – exposing feelings of diminished authority – whereby control was only effective in stable spaces (e.g. a factory) and stable times (e.g. monthly reporting deadline). The ERP "broke down functional barriers and distances (...) information could be accessed and inputted from different locations, for different purposes, for different bosses: everyone can slice the information as they wish" (Quattrone & Hopper, 2005, p. 761). Employees from different subsidiaries of the US-MNO were inserting faulty data into the ERP system which prompted managers to regain control of the black box: management "made new 'inscriptions' defining who could do what" by making data entry and information retrieval "accessible only by passwords" (Quattrone & Hopper, 2005, p. 758). Hence, the ERP implementation "start[ed] from human agency but the achievement of 'certain objectives' (...) [was] superceded by 'unintended consequences'" (Lowe, 2001, p. 85). Later, human agency prevailed again over the system. These findings suggest that humans have a greater degree of agency over systems where, although, technology at first dissolved management's (as well as the accountant's) monopoly on organizational information, it could be quickly regained through newly implemented techno-controls. This research exemplifies how digitalized accounting systems collapses the space between management and operations, however, less analysis is spent on how the ERP system collapsed time. How did the timeliness of information and the human's perceptions of time influence the use of accounting systems? Organizational life is innately bound to time; digital tools compress cycles of information sharing, data analysis, and coordination (Lee & Whitley, 2002; Orlikowski & Yates, 2003), implying that a temporal perspective is an interesting one to explore further.

Compared to earlier studies that grounded their research in Actor-Network Theory (ANT) (Chua, 1995; Briers & Chua, 2001; Lowe, 2001; Scapens & Jazayeri, 2003; Quattrone & Hopper, 2005; Dechow & Mouritsen, 2005), Beaubien (2013) analyzes an ERP implementation through a temporality-based practice theory perspective. Beaubien (2013) also found that human agency, characterized by workarounds from previous experience, prevailed over techno-controls in the implementation of an ERP system. In the case of "Abank" (a large bank), the ERP system created 'illusions' of control whereby management perceived increased control over bank branches, though this was not the case. While management saw the ERP system as "'state of the art' and idealized as the best way a bank could operate" (p. 59), branch employees quickly adopted old habits and system workarounds after they "became aware of how the system of controls operated and where alterations were possible" (p. 59). Individuals simply

adapted their old practices to integrate with the ERP system rather than allowing the system to adapt their practices. While ANT *is* interested in human actors, its central focus is analyzing interactions within networks. ANT claims that networks of people, instruments, inscriptions, algorithms, etc. have analytical symmetry (Callon, 1980, 1999; Latour, 1987, 1996) where researchers “[see] practices such as accounting not only through the lens of ‘representation’, neutral or otherwise, but as something actively implicated in attempts to ‘intervene’, to ‘control’, to ‘shape’ and to ‘determine’ particular social and economic relations” (Robson & Bottausci, 2018, p. 64). Meanwhile, Beaubien (2013) builds his analysis upon a conception of practice theory where “the temporally constructed engagement by actors (...) through the interplay of habit, imagination, and judgment” (Emirbayer & Mische, 1998, p. 970) guides action. This practice-based view exemplified how an individual’s perspective on the past, present, and future influenced the success of the ERP implementation. Individuals were not passive recipients of new controls; rather, they had agency to shape (and sometimes subvert) how control systems function day-to-day due to their deeply engrained, past habits (Beaubien, 2013). While the author takes a temporal lens, a clear decomposition of temporal structures and their relation to systems are left aside.

As noted by Dechow & Mouritsen (2005) ERP “integration is in itself a visionary object (...) of a totalizing panoptic kind of management control” (pp. 726-727) meaning a vision that management continuously strives toward rather than achieves. Even the increased “accuracy, shareability and availability of data [did] not translate easily into the panoptic view of centralization” (p. 727) at the two Danish firms. These findings suggest that techno-control at a distance is more of an ideal, rather than reality. While instantaneous data and integration helped the ‘centre’ get closer to its ‘peripheries’ in certain cases, there were still issues regarding incomplete data, workarounds, resistance, and a persistence of human agency in the face of system-based control. Ciborra (2000a) problematizes the non-use of digital tools to the concept of technological ‘drift’: the envisioned usage of a technology substantially ‘drifts’ from how it is used in practice. Technology is implemented from the ‘high grounds’ (HQ) of an organization, while being used in the ‘swamp’ – the world of everyday practice, which leads to the dichotomy between ideal and practice. In the organization, everyday practice is “made of ruses and short cuts; improvised; marginal; relying on age-old, time-less skills” to circumvent systems (Ciborra, 2000b, p. 13). Drifting may have become a reflex in the modern organization where the more complex the infrastructure and the systems, the more “hacks” will be made to circumvent them, and the more managers will experience illusions of control (Ciborra, 2000b). In sum, while advanced technology and accounting systems lure managers to control at a distance, Quattrone (2016) challenges this urge, somewhat provocatively, “if I had to bet on what big data will do for decision-making, I would say that it will make people take wrong decisions much more quickly than before” (p. 120).

In theory, digitalized processes and control mechanisms should be able to supercharge management teams. In practice several of the world’s most valuable companies, such as Amazon and Uber, have built core business processes to be algorithmically controlled (Quattrone, 2016; McDaid, et al., 2023). Hence, it is important to further understand how accounting systems are used for management control and why they may be ineffective. Studying this topic in the context of a PBO – reliant upon key personnel, improvisation, decentralized problem solving – puts digital systems to its extreme test of practical usability. In the ERP studies, even large production-based and financial MNOs struggled with incomplete data, blind-spots, and technologic drifting due to human workarounds and hacks. PBOs rely heavily upon informal communication and minimal control structures in fast-paced, uncertain environments, which without significant administrative effort, could render any advanced

system obsolete. In the next section we will review an existing strand of literature that discusses how formal and informal controls are balanced in the context of PBOs. Furthermore, the discussion will center around how the incompleteness of accounting in a PBO can still be used effectively when complemented with communication (Jordan & Messner, 2012; Hall, 2010; Vollmer, 2007; Ahrens & Chapman, 2004; Dambrin & Robson, 2011; Jørgensen & Messner, 2010; Quattrone, 2009; Busco & Quattrone, 2015)

Management control in project-based organizations

Studying how systems and accounting-based controls are used in project-based organizations (PBOs) – companies built around temporary projects and marked by high complexity and uncertainty (Hobday, 2000) – is especially relevant considering the need to balance conformity to strict accounting measures (e.g. budgets and project management systems) and practice-based improvisation to solve problems. PBOs are characterized by constant “renewal and uncertainty” (Lundin & Söderholm, 1995). They are naturally strong at “respond[ing] flexibly to changing client needs (...) integrating different types of knowledge and skill and coping with project risks and uncertainties”, yet comparatively weak where matrix and functional organizations excel: “performing routine tasks, achieving economies of scale, coordinating cross-project resources, facilitating company wide technical development, and promoting organisation-wide learning” (Hobday, 2000, p. 871). Due to the complexity of operations, PBOs need strong systems of control to standardize project outcomes while simultaneously requiring substantial flexibility and improvisation – two conflicting interests. Furthermore, PBOs are innately bound to time, defined by a clear beginning and end (Lundin & Söderholm, 1995). Unlike permanent organizations, temporary ones are organized around tasks (rather than long-term goals), time (rather than survival), teams (rather than stable organizational structures), and continuous transitions (rather than ongoing production processes) (Lundin & Söderholm, 1995). These features pose further challenges for management control, whereby time factors often constrain the functioning within and between teams in project organizations (Nandhakumar & Jones, 2001). Despite the strong presence of time pressure, little is known about how temporal dynamics influence management control practices and specifically systems use in PBOs. In the next paragraphs we will discuss what has been said in earlier PBO research.

Themsen et al. (2025), in their study of massive hospital construction projects in Denmark, introduce budgets as ‘contronymity devices’ that simultaneously support and undermine project outcomes. Since project actors were bound by rigid budget criteria, unexpected events forced design compromises such as the “cancellation of treatment rooms, the reduction of single-bed patient rooms and the deferral of needed medical equipment purchasing” which “imposed higher-than-anticipated operating costs on the receiving hospital organizations (...) ultimately reducing the hospitals’ relevance” (Themsen, et al., 2025, p. 480). This study reinforces that accounting is not a mere reflection of an economic reality, but that it is ‘performative’ – it influences economic and social outcomes (Themsen, et al., 2025). In a digitalized age, it can be dangerously easy and accessible to simplify complex operations into ‘slick’ accounting visualizations (dashboards, performance reports) from which decisions are made (Ronzani & Gatzweiler, 2022). Simplified visuals become “comfort pictures” (Ronzani & Gatzweiler, 2022, p. 15) – easy-to-read charts and budget variances that are taken at face value, resulting in fewer critical discussions. Management teams at PBOs tend to systemize and abstract the reality of complex projects to scale the central organization, which in turn brings them farther away from the everyday practices on-site.

Project organizations can experience a clear dichotomy between management performing through accounting and employees on-site performing through intuition (Veeken & Wouters, 2002). Veeken & Wouters (2002) found three overarching issues translating project progress to consolidated accounting information: first, information often came too late; second, the information was unreliable; and third, the system captured aggregated information that obscured important details. At a Dutch road-building firm, top managers used weekly cost information reports diagnostically and tracked project performance through numbers, however “lower-level managers did not seem to use accounting information for cost control, and [lacked] systematic analysis of completed projects for developing more accurate cost engineering norms” (Veeken & Wouters, 2002, p. 349). Even after integrating a new ERP system, not many foremen (on-site) “used the new tool to analyse costs” (p. 363). The ‘centre’ and its ‘peripheries’ (Quattrone & Hopper, 2005) used different informational logic. To bridge realities, top management often engaged in dialogue and data verification in collaboration with foreman to retain control over project outcomes. Importantly, these three problems – lateness, unreliability, and loss of detail – are not unique to this case, they reflect patterns found in the broader PBO literature. For instance, accounting information often arrives after critical decisions have been made (Peters et al., 2018), knowledge is incomplete or withheld due to weak sharing cultures (Wei & Miraglia, 2017), and digital systems oversimplify complex work into abstract reports (Carlsson-Wall et al., 2017; Themsen et al., 2025; Ronzani & Gatzweiler, 2022). In short, Veeken & Wouters’ (2002) findings highlight a broader challenge in PBOs: formal systems attempt to stabilize project reality, yet the timing and relational nature of project work often outpaces system logic. To make up for this shortcoming another strand of literature claims communication is vital.

Hall (2010) found that accounting information is used as a communication medium in managerial work. Since accounting figures are often not ‘complete’ representations of reality, accounting’s value lies “not necessarily in its ability to depict operational processes accurately or completely, but in its functioning as a medium through which seemingly diverse operational considerations are rendered communicable through a common language” (Hall, 2010, p. 306). This echoes Burchell, et al.’s (1980) claim that accounting becomes actionable through communication. For example, in environments where cost targets and ROI projections of R&D projects are uncertain, accounting is heavily complemented with strategic discourse (Jørgensen & Messner, 2010). Accounting has moved away from being a pure information retrieval and rational control tool to becoming a medium to discuss risks, uncertainties, and opportunities – “for decisions to be well made, information requires an act of communication (...) a dialogue to debate what is right rather than to benchmark it to a given notion of rational social behavior.” (Quattrone, 2016, pp. 119-120).

The communicative aspect of accounting is especially relevant in PBOs where routine tasks, feedback loops, and company-wide technical development is weak (Hobday, 2000). PBOs have difficulty with both tracking information (Veeken & Wouters, 2002), using accounting systems such as business intelligence systems (BI) for control (Peters, et al., 2016), and establishing a culture for knowledge sharing (Eskerod & Skriver, 2007), which hampers the quality of formal controls. As a result, PBOs typically kick-off projects with robust action plans, budgets, and systems, but during execution they rely heavily on ‘minimal controls’ and organizational improvisation (Peters, et al., 2018; Carlsson-Wall, et al., 2017). This reliance on flexible, practice-based coordination places greater weight on cultural norms and everyday communication. For instance, Wei & Miraglia (2017) found that even advanced IT systems designed for knowledge capture fall short if the culture fails to support open knowledge exchange. When people withhold or delay information, the systems they are meant to feed

become incomplete, making system-based controls less reliable and informal communication even more important. The more limited accounting representations are, the more they provoke people to fill in the gaps through dialogue and negotiation (Dambrin & Robson, 2011; Busco & Quattrone, 2015). Numbers, even when incomplete, prompt participants to probe assumptions (“Is this price fair? Why is this cost high?”) and in doing so, give new meaning to accounts (Vollmer, 2007). In this way, informal communication not only compensates for missing data but also introduces flexibility in how performance is judged; rather than management steering strictly using certain numbers, they are used to facilitate discussion and strategizing (Dambrin & Robson, 2011). Furthermore, visual charts and targets such as the Balanced Scorecard (BSC) prompt managers to come together to interpret results; in effect, the *practice* of accounting – meetings, debates, action plans – is the real control mechanism, rather than the cybernetic use of them (Busco & Quattrone, 2015). While communication is important, it is time exhaustive, reliant on culture, and unscalable particularly within PBOs (Hobday, 2000; Wei & Miraglia, 2017). One gap in earlier research is that studies have not conceptualized the reason for poor data and compensatory, dialogue-based, controls through a temporal lens that temporary organizations are innately bound to.

Taken together, prior research shows that accounting, digital systems, and humans are closely intertwined in modern organizations. ERP and related technologies create systems of control, shift power, and generate workarounds and deviations (Quattrone & Hopper, 2005; Dechow & Mouritsen, 2005; Beaubien, 2013; Ciborra, 2000a, 2000b). Access to real-time data allows managers to collapse the distance between headquarters and sites and to exercise control at a distance, yet panoptic control remains more of an ideal than a reality (Dechow & Mouritsen, 2005). If the advancements in systems make management “dream of full control where distance is cancelled, where databases and statistical models know individuals better than the individuals themselves and are able to predict their wishes and future actions” (Quattrone, 2016, p. 120), then the PBO literature further cements that this may be delusional. In PBOs, temporary structures and project logics make formal accounting controls and digital tools even harder to use as intended: managers often depend on conversation, intuition, and local knowledge to compensate for information that is incomplete, unreliable, or late (Veeken & Wouters, 2002; Peters et al., 2018; Wei & Miraglia, 2017; Carlsson-Wall et al., 2017; Themsen et al., 2025; Ronzani & Gatzweiler, 2022).

Existing studies tend to pay less attention to, what organization studies find central in modern corporations, time. Apart from some notable exceptions within the ERP and PBO studies discussed (Nandhakumar & Jones, 2001; Beaubien, 2013), temporal aspects related to system use and accounting are underexplored. Time is not merely a backdrop against which organizational activities unfold (Ballard & Seibold, 2003). Digital accounting systems impose their own temporal logic – monthly reporting cycles, real-time data dashboards, deadline-driven documentation requirements – that may conflict fundamentally with the sensitive temporal rhythms of actual work (Nandhakumar & Jones, 2001). In PBOs, where project phases shift rapidly, decisions must be made immediately, and problems emerge unpredictably, this temporal misalignment becomes especially pronounced. When accounting information arrives too late to influence decisions (Veeken & Wouters, 2002; Peters et al., 2018), when systems demand documentation at predetermined intervals regardless of work pace, or when monthly budget reviews fail to capture the fluid, day-to-day adaptations that characterize project execution, the underlying issue may relate to temporal incompatibility. What if employees develop workarounds not simply because they resist control or lack understanding, but because the temporal structure imposed by digital systems does not match the temporal structure of their work? Existing literature has not systematically examined how temporal

dynamics – the ways different organizational actors experience, structure, and coordinate time – shape the use and effectiveness of digital accounting systems in project-based settings. For this reason, we draw our theoretical lens from organization studies that discuss the interaction between systems, humans, and time.

Analyzing management control through temporal experience and communication structures

This study uses Ballard and Seibold's (2003) Meso-Level Model of Organizational Temporality as its main theoretical framework, which builds on Bourdieu's work *Outline of a Theory of Practice* (1977). Pierre Bourdieu, the French sociologist and anthropologist, developed a theory of practice that begins with people's everyday actions, rather than with abstract rules or rational models. He developed the concepts of, among others, *habitus*, *field*, and *capital*. The *habitus* is an individual's way of perceiving, acting, valuing situations based on their life experiences. Dependent on "forms of the division of labour between the sexes, household objects, modes of consumption, parent-child relations, etc.", the "habitus, a product of history, produces individual and collective practices" that explain "more reliably than all formal rules and explicit norms" how individuals think and act (Bourdieu, 1990, p. 54). The habitus operates within its *field* – a structured social space (academia, law, business, etc.) that has its own unique rules, power relations, and valuable resources.

The habitus tends to generate all the 'reasonable', 'common-sense', behaviours (and only these) which are possible within the limits of these regularities, and which are likely to be positively sanctioned because they are objectively adjusted to the logic characteristic of a particular field" (Bourdieu, 1990, pp. 55-56).

Finally, *capital* is any resource that gives an individual power in a particular field; this includes economic, cultural, social, and symbolic capital (Bourdieu, 1986). In summary, practice is determined by the interplay of an individual's habitus, field, and capital.

One particularly innate part of practice is tempo: "we must therefore reintroduce time into the theoretical representation of a practice which, being temporally structured, is intrinsically defined by its *tempo*" (Bourdieu, 1977, p. 8, original italics). Bourdieu is especially interested in the temporality of action, the order and tempo with which actions are carried out. In his view, time and communication are mutually constitutive: communication unfolds with a certain frequency, pace, and duration, and it happens in relation to what came before and what comes after. However, at the time, Bourdieu claimed that "scientific practice is so "detemporalized"" (Bourdieu, 1977, p. 9).

Ballard & Seibold's (2003) model bring temporality to the center, interacting with cultural patterns, environmental factors, individual dispositions, work group norms, and industry practices (see figure 1). In this way, the authors integrate Bourdieu's ideas of habitus, field and capital as more concrete contextual elements in their model. Hence, this model offers a rich analytical perspective to view the practices between individuals, functional units, accounting, systems, headquarters, and project groups. It neatly consolidates numerous studies across organizational and social sciences that have increasingly recognized temporality as a crucial lens for understanding organizational phenomena (Ancona, et al., 2001).

For the purposes of our study, we place special emphasis on the ten dimensions of temporal experience and the three communication structures, situated at the heart of the framework,

while treating the remaining elements as contextual factors. The dimensions of time are split into two categories: enactments of time (the way organizational members “perform” time) and construals of time (the way time is interpreted). These temporal dimensions influence and are influenced by three communication structures: activity coordination, workplace technology, and feedback cycles as seen in the whole lines in the figure below.

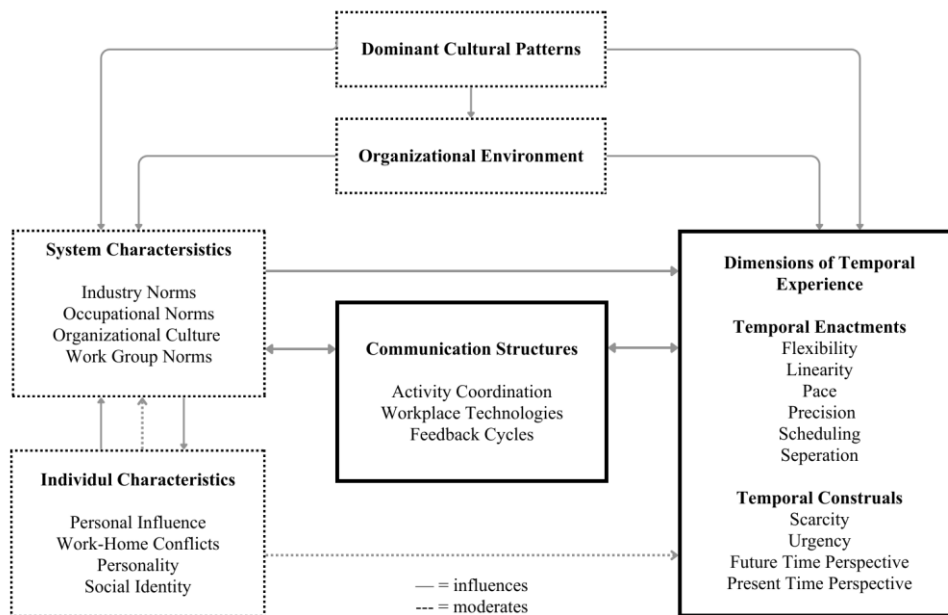


Figure 1: Ballard and Seibold's (2003) Meso-Level Model of Organizational Temporality, emphasis added (solid black lines)

In the next section we will briefly discuss the six enactments as well as the four construals of time. This will be preceded by a discussion of the communication structures that the temporal dimensions interact with.

Enactments of time

“*Flexibility* pertains to the degree of rigidity members enact with regard to their plan” (Ballard & Seibold, 2003, p. 386). Highly flexible environments allow rescheduling or shifting tasks with minimal friction while rigid environments tolerate little deviation. Flexibility is often necessary in unpredictable task settings, whereas low levels of flexibility are associated with stable and clear task environments. *Pace* refers to “tempo or rate of activity” within a workgroup (Ballard & Seibold, 2003, p. 386). Fast-paced environments emerge when groups face numerous inputs or shifting conditions, while slow-paced settings allow a more measured rhythm. A team’s pace often becomes a cultural norm and influences members’ communication and expectations. For instance, a tech support team responding rapidly to incoming tickets operates at a much higher pace than a policy team working through long-term reports. Furthermore, it has become increasingly important for companies to have a quick pace in adapting its business activities to a fast-changing external environment.

Separation refers to the availability of group members’ time and space. High separation involves shielding oneself from interruptions – closing doors, silencing phones, etc. – while low separation allows or even encourages ongoing accessibility. Groups differ in whether they treat interruptions as harmful distractions or natural parts of work. An “open-door policy” for example, signals low separation and high availability. *Linearity* refers to how tasks are

executed, either step-by-step (linear) or simultaneously (non-linear multitasking). For example, a mail carrier completing one delivery at a time exemplifies linearity, whereas a stylist managing multiple clients simultaneously reflects nonlinear temporal execution. These differences shape how people experience and coordinate work under time pressure. “The essence of *scheduling* is to determine when some event will occur...in relation to an external calendar or clock” (McGrath & Kelly, 1986, as cited in Ballard & Seibold, 2003, p. 387). Highly scheduled environments formalize sequencing and duration, while loosely scheduled ones rely more on flexible task lists. The extent of scheduling can be determined by studying group members’ ability to fit additional activities into their schedule. While scheduling refers to the degree of formalization of activities, *precision* captures “the exacting nature of the timing,” (degree of strictness of time) in which the activities are carried out (Ballard & Seibold, 2003, p. 388). High-precision environments value being “precisely” on schedule, while low-precision contexts accept looser timing norms. For example, the delivery of a project has a precise, predetermined deadline while a telephone repair person may be given an imprecise 8-hour time window to service a set of homes.

The above-mentioned six enactments of time are a lens to analyze how individuals *perform* time within an organization context. In the next section we will review how individuals “construct” and interpret time by explaining the four construals of time.

Construals of time

A *present time perspective* reflects a focus on the “here and now,” where “time consciousness is suspended and action occurs in the infinite present” (Jones, 1988, as cited in Ballard & Seibold, 2003, p. 389). Groups with a strong present orientation prioritize immediate issues and emergent problems. This orientation is common in environments requiring constant responsiveness, such as emergency room staff. A *future time perspective*, on the other hand, means viewing time as “compelled toward some distant outcome” guided by long-term goals (Jones, 1988, as cited in Ballard & Seibold, 2003, p. 389). Groups with strong future orientation engage in strategic planning and anticipate long-range developments. This perspective is typical in roles requiring forecasting or extended project horizons. *Scarcity* is defined as “the belief that time is a limited and exhaustible resource” (Ballard & Seibold, 2003, p. 389). Groups experience scarcity when they face too many inputs or insufficient time to complete tasks, often reflected in talk about “saving time” or “buying time.” Perceived scarcity can fluctuate with workload cycles. For example, accountants nearing fiscal year-end commonly describe time as scarce. *Urgency* and scarcity usually coincide. However, urgency is related to how a group member carries out a task. An urgent individual has a preoccupation with deadlines and task completion, even when time might not be scarce. Groups that have “constant stimulus-response interactions are likely to construe time as urgent” (Ballard & Seibold, 2003, pp. 390-391).

Communication structures

Activity Coordination

Ballard and Seibold (2003) define activity coordination as the temporal processes through which people synchronize tasks, sequence work, and ensure that interdependent actions fit together across time. They emphasize that coordinated activity relies on shared understandings of timing, pacing, and sequencing. These elements enable collective action even under dynamic or uncertain conditions. Coordination is not simply about following a schedule; it involves continual negotiation and communication as temporal conditions shift.

This aligns closely with organizational research showing that formal temporal artefacts – such as project schedules, Gantt charts, or timelines – are necessary but not sufficient for coordination (Yakura, 2002). Yakura’s work demonstrates that timelines function effectively only when they serve as boundary objects: tools that anchor collective action while enabling dialogue among stakeholders who may hold different temporal assumptions. For a timeline to be truly useful, it must be flexible enough to reflect the perspectives and rhythms of different groups while still offering enough structure to maintain a shared reference point.

Workplace Technologies

In the model, the authors are concerned with “technologies-in-practice” which “refer to the specific structures routinely enacted as we use the specific machine, technique, appliance, device, or gadget in recurrent ways in our everyday situated activities” (Orlikowski, 2000, p. 408). Hence, workplace technologies (also referred to as systems in this study) are studied through how they are used and what they do in practice, rather than studying “the structural or rational features of a given tool” (Ballard & Seibold, 2003, p. 404).

Lee and Whitley (2002) note that “information technology... is ‘transforming time’, the way time is perceived, used, managed, and disciplined” (p. 235). Just as the mechanical clock once redefined industrial work - introducing precision, synchronized scheduling, and the metaphor of the “clockwork factory” - digital systems today transform expectations around instantaneity, cycle compression, and work-life boundaries. Furthermore, digitalized artefacts have presented the organization with a better ability to bridge temporal zones, e.g. work units with varying temporal structures. One such example is “software that records and simultaneously posts the schedules of multiple people and enables more fluid communication and planning across temporal zones” (Ancona, et al., 2001, p. 526). These technologies are powerful, but not self-enacting: they depend on people updating them reliably and communicating through them in a timely manner. If teams move at different speeds or fail to input changes promptly, information becomes outdated, causing misalignment, delays, or uninformed decision-making. Thus, technology strengthens temporal coordination only when accompanied with negotiation, dialogue, and active usage (Yakura, 2002).

Feedback Cycles

Feedback cycles are described as temporal mechanisms that structure when and how groups assess progress, reflect on performance, and adjust their actions (Ballard & Seibold, 2003). These cycles can be formal (e.g., weekly meetings, monthly reporting) or embedded into systems (automated reminders, milestone alerts). Feedback cycles help pace work by creating regular checkpoints that synchronize team members and prevent misalignment between subgroups.

Ancona and Chong (1996) found that teams using explicit tempo checkpoints performed better in dynamic environments because such checkpoints allowed them to adjust pace and trajectory. Similarly, Waller et al. (2002) show that teams facing shifting deadlines renegotiate internal timelines and task sequences, effectively re-coordinating on the fly when external time parameters change. Thus, feedback cycles operate as key temporal anchors that keep distributed workgroups aligned over time.

Motivating a temporal lens in accounting

Ballard & Seibold’s (2003) model share fundamental elements with accounting literature. To begin, sociological views in accounting claim that accounting is not neutral, but rather shapes

and is shaped by organizational activities (Burchell, et al., 1980; Hopwood, 1983) echoing the idea of the mutually constitutive nature of temporality and organizational structures. Furthermore, each of the three communication structures are commonly topics of study within accounting. Activity coordination is often described in terms of aligning toward common financial and non-financial goals. These are often achieved through coordinating devices such as budgets, KPIs, schedules, among others. Furthermore, a plethora of accounting systems, commonly called accounting information systems (AIS), fall within the category of workplace technology. AIS are computer-based systems used “for tracking accounting activity in conjunction with information technology resources (...) responsible for the collection, storage and processing of financial and accounting data.” (Belfo & Trigo, 2013, p. 537). These systems are deeply engrained within modern organizations where both humans and automated processes serve as inputs toward the creation of accounts, management accounting reports and analyses. Systems such as project management software, ERP and CRM systems allow users to create a ‘memory’ of activities, also called the “organisation of knowledge” (Quattrone, 2009, p. 91). Managers use these inscribed numbers for strategic decision making through dialogue and interpretation (Hall, 2010). Finally, feedback cycles in accounting can be considered formal check-in meetings, variance reports, and continuous budgeting and informal feedback from continuous dialogue with superiors and peers (Pitkänen & Lukka, 2011).

While the sociological view embeds accounting as a social, actionable, and dynamic concept within the organization it is within, to our knowledge, Ballard & Seibold’s (2003) temporal model has not yet been applied within the domain of accounting literature. It is important to integrate concepts of temporality to the study accounting systems for management control since the modern corporation operates in an increasingly time-obsessed environment, an era of nanosecond business cycles (Ballard & Seibold, 2003), making speed and temporal coordination critical for competitive advantage (Lee & Whitley, 2002; Orlikowski & Yates, 2003). The model helps us analyze accounting systems, feedback cycles, and accounting-related coordination activities in relation to the inherent temporal limitations and dynamics within the organization and identify its consequences for management control.

3. Research Design

This thesis adopts a qualitative single-case field study of a PBO in the construction industry. Ahrens and Dent (1998) argue that field research provides the context needed to understand how accounting and control work in practice, shaped by local meanings and interpretations. Single-case studies offer the depth and detail required to uncover underlying dynamics and to draw theoretical insights (Dyer & Wilkins, 1991). In this way, we aim, by closely examining one organization, to form a detailed, practice-based account of the mutual shaping of people and systems.

We investigate *when* accounting representations support coordination, communication, and control or, conversely, *when* they distort reality and weaken these functions. More specifically, we examine how temporal structures influence whether employees feed digital systems with up-to-date information or circumvent them through other forms of communication, and how this, in turn, creates (mis)alignments and impacts company performance in terms of profitability, coherence, and satisfaction. Our research design is motivated by the limited attention to temporality in accounting research, and we aim to contribute to the accounting literature while drawing on insights from sociology, and organization studies, where temporality has been more extensively theorized. Through an extensive examination of

existing literature on related topics, 15 interviews with cross-functional team members, and a site visit with our case firm this design provides the depth to study how time-related dynamics influence control and coordination in practice.

Initial Engagement with M-Roc: Systems and profitability on top of mind

As a first step, we established contact with M-Roc, the focal organization of our study. M-Roc provides a relevant setting for studying how temporal structures and accounting systems shape coordination and control. As a medium-sized construction PBO, it faces the typical challenges of project-based work – tight deadlines, shifting teams, and the need to coordinate between head office and project sites. The company’s reliance on accounting representations across functional teams, combined with informal communication practices, made it an ideal context for exploring how digital tools and humans interact over time. This sets the stage for understanding how temporal (mis)alignment influences system (non)use and which effects it has on management control, particularly in PBOs.

In an initial call with the CEO, the firm was described as having been grappling with low and unstable margins and limited oversight across multiple projects. Despite formal planning and reporting systems, management struggled to obtain a timely, accurate view of project progress. This led us to hypothesize that timing, sequencing, and rhythm of communication might be an underexplored barrier to both profitability issues and coordination challenges. A second call with the CEO provided further insights into M-Roc’s information systems and tools. While management actively promoted standardized routines – internally branded as “M-Roc’s way of working” – there were ongoing concerns about whether these tools were used as intended. Despite the numerous systems, updates were often delayed or missing, and compliance required continuous ‘nagging’. The CEO even joked that nagging is all he does, reinforcing our interest in exploring how the timing of communication influence how and especially *when* information is exchanged or not.

Empirical Data Collection: Feeling the organizational pulse through a mixed method approach

Besides the two unrecorded introductory conversations with the CEO, we conducted 15 semi-structured interviews with employees to capture diverse temporal perspectives and lived experiences of systems use and project work. All but two were held face-to-face at the head office, lasting between 50 minutes and 1.5 hours, which helped build rapport and facilitated more natural and open conversations. Of the remaining two interviews, one was conducted via Teams due to illness, and another was held during a nearly three-hour site visit. All participants provided written consent prior to participation, and were informed about confidentiality, anonymity, and GDPR-compliant data handling. Interviews were conducted in Swedish and recorded either by phone (the least intrusive option) or via Teams (primarily for screen-sharing system walkthroughs) and then transcribed². Additional notes on emerging themes and quotes were taken manually throughout.

² We used Krisp for transcription, except for the Teams interviews, which were automatically transcribed from the recorded meetings. According to Krisp’s security documentation, customer data (including transcripts) is not used to train AI models; Krisp opts out of model-training permissions with its providers. Krisp supports GDPR rights and uses EU Standard Contractual Clauses (SCCs) for any EU–US transfers. After transcription, we deleted the audio files and transcripts from our Krisp workspace.

Using a question bank prepared, we asked employees about their work processes, communication patterns, and use of digital systems in everyday work. Participants were encouraged to describe when and how they used systems, what they found useful or challenging, and in what situations they chose to bypass them. We also explored how timing, routines, and deadlines shaped information flows, and how knowledge was transferred between projects. While we did have a standard interview guide for all employees, we also tailored specific questions to the role we would be interviewing. For example, we tailored system-heavy questions to the System Manager, and control questions to the CFO, etc. See [Appendix](#) for the generic interview guide.

Several interviews included system walk-throughs, offering practical insight into intended functionalities versus actual use. These walk-throughs surfaced frustration – for example, when the Controller failed to load Next or when the Head of Energy searched for documents buried in his emails – but also highlighted valued features, such as the HandyDay tender platform, which eases users’ workload by allowing them to input specifications and automatically generate lists of matching suppliers and subcontractors. Under our confidentiality agreement, we were also granted access to M-Roc’s intranet containing key documents, templates, and information boards. This gave us the chance to look back after the interviews to look at exact figures, KPIs and descriptions of how the systems function.

Because the firm is small (~30 employees), participants were selected in consultation with the CEO based on availability and functional roles. We spoke with all relevant system users across managerial and non-managerial positions, including project managers, finance/controllers, purchasing, site management, and owners/board. An overview of all interviews is presented in the [Appendix](#).

We also conducted informal observations before and after interviews: fieldnotes on the office environment (including interior design and art as organizational artefacts and everyday coordination practices). Through this, we noted quick feedback exchanges, as well as more formal reconciliations – for example, the Procurement Manager and Head of Cost Estimation had just discussed inconsistent production feedback before our interview. We also observed a broader organizational focus on profitability, risk-taking and general morale-building, reflected in the art displayed at HQ: with the presence of a book titled “*Shit happens get over it*”, for instance, that uses humor to normalize setbacks.

Finally, we conducted a site visit to one of M-Roc’s largest ongoing projects. After the interview with the Site Manager – occasionally interrupted by subcontractors stopping by with quick questions – he guided us through the building. This allowed us to experience the pace of work on site and observe parallel workstreams, physical artefacts (time sheets, timelines, drawings, information boards, signage, and safety equipment), and the Site Manager’s interactions with subcontractors and project team members. He called people by name, switched to Spanish when needed, and emphasized the importance of cross-team collaboration – illustrating the intricacies of coordinating complex activities and varied working practices. A selection of photos from our visits can be found in the [Appendix](#).

Data Analysis: A pendulum between literature exploration and empirical review

To ground our study, we began with an extensive review of literature in both domain and method theory streams. From our initial engagement with M-Roc, we had already established an interest in the role of temporality in project-based settings, and explored papers on how

people use systems, or on the contrary worked around them and *why* and *when* such behaviors occur. For this, our advisor recommended several foundational papers, which served as an entry point. Using citation tracing and the AI tool Research Rabbit, we expanded our corpus and selected papers based on title relevancy, journal credibility, and citation count, leading us to an initial 25+ papers. To manage the growing body of articles, we developed a literature matrix to systematize insights, compare perspectives, and clarify how each article informed our emerging domain and method theory. As our review progressed, we added both foundational papers and more peripheral studies.

We examined accounting literature on system use and management control, particularly AIS and ERP, alongside scholarship on the sociology of temporality. Across these streams, we identified a gap: while accounting studies have focused on how systems shape control, coordination, and data visibility, they pay limited attention to the temporal assumptions embedded in these systems and how they interact with the lived rhythms of organizational work. Conversely, temporality research offers detailed conceptualizations of time, pace, and rhythms, but rarely engages with the material constraints of applied accounting systems. After reviewing studies that analyzed temporality across different dimensions, Ballard and Seibold's Meso-Level Model of Organizational Temporality emerged as a holistic and context-rich lens through which to analyze misaligned system use, enabling us to examine how temporal structures and enactments shape the production and use of accounting representations.

We adopted reflexive thematic analysis, identifying patterns and interpreting meanings across the dataset (Braun & Clarke, 2006). Our thematic analysis did not aim to build formal theory or quantify text; instead, it enabled us to develop themes that capture not just what participants said, but how their accounts revealed deeper issues of misalignment among people, systems, and time – for example, recurring delays in updating invoicing and project data that left HQ working with outdated information. Its reflexive orientation allowed us to move iteratively between data and theory, tracing how meanings were constructed, negotiated, and shaped by temporal pressures. In this way, our analysis was abductive (Dubois & Gadde, 2014); while concepts from accounting and temporality guided us, we did not use predefined codes but rather let the empirics coupled with prior literature shape our analysis.

Our data analysis began with reviewing notes we took during interview sessions. Then, we used NVivo for a few interviews to highlight and group findings under preliminary subheadings. As this process became increasingly time-consuming and complex as the number of nodes grew, we continued manually, reading transcripts closely and annotated paragraphs or sentences that stood out. Third, to support categorization we entered our preliminary findings and NVivo categories into ChatGPT³ to generate thematic suggestions. While helpful for brainstorming, all coding decisions and final theme constructions were made by the authors. We triangulated themes with internal documents on the intranet, screen recordings, and on-site observation to test temporal coherence.

Finally, we structured the empirical findings along what we considered the most intuitive approach for the reader and context rich description of our case; a linear presentation of the project life cycle phases, which we formulated from the general overviews received from interviewees. While we did not experience a project from start to finish, our empirical evidence allowed us to distinguish how different rhythms, deadlines, key interdependencies and

³ According to OpenAI's "Enterprise Privacy" documentation, inputs from ChatGPT Enterprise are **excluded** from model-training by default, and data retention is controlled by workspace administrators.

coordination issues unfolded across functions over time. We articulated action titles linked to our core temporal findings to clarify the themes of interest throughout the section. All quotations were anonymized and translated by the authors with the help of DeepL⁴ or ChatGPT for accuracy.

4. Empirical findings

This section is an exploration of how temporal enactments and construals, systems, and human agency are intertwined in the practice of project management and execution at M-Roc. First, we introduce M-Roc through the lens of contextual factors surrounding the organization such as the organizational environment, industry norms, organizational culture and individual characteristics (Ballard & Seibold, 2003). Following this, we will walk through each project phase (in linear order) – initial screening and tender preparation, mobilization and pre-construction, on-site execution, delivery and handover, and post-project follow-up – analyzing how the dimensions of temporal experience influence communication structures and vice-versa. While these stages appear sequential on paper, in reality they are deeply shaped by temporal dynamics: deadlines structure work, disruptions demand rapid re-prioritization, and information must travel across time from one phase to the next. Taken together, these dynamics provide the backdrop against which our empirical material unfolds, beginning with an introduction to M-Roc and its organizational context, followed by an examination of the project phases in chronological order.

Introducing the case firm and its contextual environment

“You can’t build via emails” (Operational Owner)

M-Roc is a small to medium-sized construction firm headquartered in Solna, Sweden operating mainly across the Stockholm region. About four years ago, the company emerged as a strategic spinoff from a larger business group that has its roots to the 1950s, followed by a CEO transition and a fundamental cultural change, paraphrasing one of the interviewees: “it’s old but yet new” (Project Manager 1). Almost all employees are new since the spinoff, and the company also moved into a new office with an open layout, an intentional step, according to the CEO, to break with previous work norms and encourage more transparency, collaboration, and cross-functional communication.

M-Roc is a PBO, organized with a head office (HQ) and 15-20 ongoing projects each year. The company has six different business units (new production, renovation, swim halls, among others) and for the larger business units, the business unit manager oversees 8-12 projects simultaneously. These projects are temporary organizations made up of human resources and systems from head office, external consultants, and sub-contractors. The head office employs around 30 full-time staff, while external human resources vary depending on project size. Ownership is concentrated around two principal owners – one operational and one more strategic – with a few senior managers holding minority shares. M-Roc is organized functionally, with teams for cost estimation, purchasing, finance, project management, site operations, and engineering. Some functions, such as costing and purchasing, carry heavier

⁴ For translation, we used the standard (non-Pro) version of DeepL. As stated in DeepL’s public documentation, texts processed through the free service may be retained and used to improve model quality, and users should not upload confidential or sensitive information. To mitigate this, we anonymized material before translation, avoided uploading identifiable content and the default choice was to translate ourselves.

loads at project start-up, while project managers, finance, and site roles remain engaged throughout the lifecycle. Projects are often considered to be their own organization: “head office and production site are like two different companies” (Cost Estimation Manager).

Due to the relatively small size of the head office, although formal roles exist, interviewees emphasized that working at M-Roc requires going beyond strict job descriptions. As the CFO put it: “You need to take ownership. It's so important in a business like this when you're smaller”. Unlike larger competitors with extensive support functions and internal audits, M-Roc depends on “staff who are extremely business-minded and want to make things happen (...) those are the kind of individuals you need in a construction company,” noting that “there is a core group of staff like that [at M-Roc]”(CFO). Still, recruiting has been challenging and employee turnover high. The CFO explained:

When I say high staff turnover, I don't mean undesired turnover... many people bounce between workplaces. So it comes back to recruitment – it's extremely important that you bring in people who fit our model and the people here, who take ownership of what they do.

He added that hiring the right people is only part of the equation; creating a culture of openness and information sharing is equally important: “Ultimately, it's a staffing issue. But it's also about creating a culture where problems are brought to light”. In this sense, recruitment and retention form a loop: culture depends on keeping the right people, and keeping the right people depends on the culture they help create:

There has always been a good atmosphere and an open culture. There's a lot of talk about how you should be able to ask for help and how all knowledge should be kept in one place, but that becomes difficult if you change staff. The culture is created by the people. That's why recruitment is so important – getting the right people who fit in. (Controller)

This cultural tension stood out as a main topic in the latest strategic offsite and has been revisited continuously. The company's other strategic meetings include a yearly offsite where the whole company gathered to discuss strategy for the coming year together, three to four information meetings per year, two company-wide lunches per year, leadership meetings once per month, and five board meetings per year. These are used to coordinate company goals in a changing and dynamic market.

Over the past few decades there has been a substantial change in the sector: “We are not really builders today. We just sit behind a computer” (Business Area Manager). According to the Operational Owner, about 75–80% of components are now prefabricated, a dramatic increase compared to the last century. He continued by offering a subtle critique of the growing ‘construction illiteracy,’ noting that “you can't build via emails”; there is an evident shift in which the younger generation are schooled in “academia”, replacing “old-school builders” who learned ‘the hard way’ through long on-site apprenticeships. That is not to say it's necessarily black or white, according to the CFO: “The model looks different [today]. It can be good to have professional experience, but it is also good to have an education”. This shift increases the need for academically trained staff who can manage coordination, documentation, and contract-heavy processes rather than manual on-site work. Another trend that helps explain why more academically trained staff are now needed in office-based roles is heightened client–contractor tensions. In the Strategic Owner's words:

There is no industry where people screw with you as much as here. (...)It's quite an ugly industry, I must say. (...)If you imagine the medical profession working the same way, a lot of people in our hospitals wouldn't make it..

This sentiment is echoed both across our interviews and in industry surveys (Byggföretagen, 2023; Boverket, 2018). In a survey by Byggföretagen (2018), it is found that the tendering process under the Swedish Public Procurement Act (LOU) was described as beneficial for clients but risky for builders. This imbalance is likely linked to the increasingly juridical nature of construction work where: "All rights belong to the customer" (Strategic Owner), meaning they choose the contract terms like price, schedule, and design. This becomes a source of tension due to the information asymmetry between builders and clients. As the Strategic Owner put it, "I believe that the client lacks, or rather, it is *absolutely certain* that the client lacks knowledge", a gap that often creates misunderstandings and friction even before a project begins. One solution mentioned is to enter open-book contracts⁵, where the client is granted access to systems like HandyDay for procurement to increase transparency. In these arrangements the client pays the contractor for all costs plus a predetermined markup, which lowers the risk for the contractor and allows the customer to share gains if cheaper production alternatives are identified.

Besides building a trust-based client relationship, many interviewees emphasized that focusing on niche segments is key to succeeding in this sector. While large companies like Skanska and NCC continue to thrive despite thin margins, due to their high volumes and standardized processes, this is neither an attractive nor viable alternative for smaller or medium-sized firms. Nonetheless, M-Roc has generally taken a broader approach, at times "a bit too wide and scattered," as the Cost Estimation Manager put it, effectively taking whatever comes in. Pressure from both owners and management has gradually pushed the company toward developing a clearer niche, especially in Water and Energy, where expertise and profit margins tend to be more stable. Besides this there are other pathways to profitability within each project. The CFO highlighted several important levers: screening and selecting low-risk projects, achieving procurement gains, working faster than scheduled, introducing ÄTA (contract additions with markups), maintaining high-capacity utilization (make sure everyone are put to work), and avoiding *vite* – a contractual penalty fee⁶. Without going into detail on each of these mechanisms, profitability levers unfold across the entire project life cycle, from early screening to post-delivery, underscoring the importance of every project phase toward the final outcome. While it's important to have the 'right' people to deliver profitable projects, it is also central to have effective systems to standardize, coordinate, and scale operations sustainably.

The Swedish construction sector is described as slow-moving compared to other industries, lagging in digital adoption: "I think digitalisation is incredibly low in the construction industry. (...) There are so many documents required, but they're still using binders on the construction sites where you have to write and sign things" (Systems Manager). M-Roc, however, while not as rigid as larger peers, has transformed its digital control environment over the last few years. As in any industry, standardized processes naturally take shape as a firm matures, often through attempts to reduce risk and improve coordination, project management, and control. In our case

⁵ This is M-Roc's preferred way of working, however, not a large proportion of its projects are set up through this model. While open-book collaborations are much more common today compared to ten years ago, the most common approach is that the contractor bids a certain price for a project and keeps excess profits if they deliver below this price.

⁶ Vite is charged when the contractor fails to meet agreed obligations, most commonly delays, quality deviations, or other breaches

firm, digital systems have played an important part in this acceleration. With the hiring of a systems manager and written procedures for project management (“M-Roc’s Way of Working”) driven in part by newly hired employees with extensive industry experience, the system landscape has evolved into something complex and at times overwhelming. As the Construction Engineer put it, “You definitely need different systems, but then maybe you could shrink it a little”. M-Roc now uses 10+ systems for documents, budgeting, forecasting, procurement, time reporting, site communication, supplier evaluation and more. Interviewees repeatedly noted that while each system “has its purpose”, it requires “a lot of admin work” (Procurement Manager). This, at times, has led to untimely updating of systems, a concern raised by management as well as co-workers because it weakens project oversight and control; in the words of the Controller: “Shit in, shit out. (...) in my case, if someone doesn't send in the information, then everything falls apart. And maybe that's what's a bit annoying, that you sometimes have to call and chase people: ‘I'm missing this information’”. This issue runs through our study as a recurring theme, which we will return to in the following sections as we move through the different project phases and explore how, what, and of particular interest *when* systems are (not) used. In the next section we describe the omnipresent temporal structures and communication structures that are deeply engrained in each phase of the project cycle.

Contextual elements of M-Roc based on Ballard & Seibold (2003)

Dominant cultural patterns	Swedish construction culture emphasizes proper technical standards and regulatory compliance.
Organizational environment	Public procurement market dominated by LOU, won primarily on lowest price, creating intense competitive pressure. Power asymmetry toward client and large construction firms.
Industry norms	Thin margins (5-10%), low levels of digitalization, high levels of juridical disputes, strong time pressure, 70-80% prefabrication, extensive subcontracting, widespread quality issues.
Occupational norms	Relatively high employees turnover, especially for on-site staff, specialization in certain functions, site-managers and HQ take a lot of pride in what they build.
Organizational culture	Taking responsibility and risk, very entrepreneurial but also procedure oriented. Mix of seasoned builders (“gamla stötar”) and academically trained staff, fluid and dynamic responsibilities in practice.
Work group norms	Most projects involve newly assembled teams with different levels of familiarity with project specifics and organizational procedures. Team continuity is rare.

Initiation and tender preparation

“Everything has a deadline, all the time” (Cost Estimation Manager)

Bidding: Balancing the urgency to win projects with getting the right projects

Construction projects do not start on-site with demolishing walls or paving concrete, nor does it start with design or planning. Rather, it all begins with cost estimators scanning the market for potential tendering opportunities. In the words of the Operational Owner:

You have to analyze the projects. What is the customer like? Is it a solid customer? What does the project look like? When will it start? Is it complicated? Do you see a lot of risks in it? Look at the AF section [General Conditions of Contract]. Are there large penalties involved, for example? And does it suit us and our organization(...)? And so on. All of that must be done *before you even decide* to calculate it. And then you start calculating it.

Before any project is won or initiated, organizational members need to adopt a future time perspective by projecting plans forward, imagining timelines and likely outcomes based on prior experience and intuition. While the cost estimation of incoming tenders is large in scope and importance, the work often unfolds under tight time constraints. In this phase of the project lifecycle there is a clear sense of temporal scarcity, which has been exacerbated by a too broad focus. “I never look at the quantitative, I always look at the qualitative. We’ve been juggling too many balls at once, so we’ve been counting a little too broadly and scattered” (Cost Estimation Manager). In practice, the Cost Estimation Manager completes roughly 50 bids per year with several running in parallel: “I had nine projects before I went away, which is completely absurd... what you should have is 2–3”. The extreme multitasking (non-linearity) that the calculators do results in more output offset with, at times, lower quality: “[I have] 45 projects in my head, then you really have no clue” (Cost Estimation Manager). Although the Business Area Manager describes that “our calculators (...) are so incredibly skilled and experienced”, the constant need for intense multitasking makes the cost estimations less robust and even worrisome at times. In the words of the Cost Estimation Manager: “If you [calculate] one hundred projects per year, half-good, well then you won’t get a lot. And it will be a worry when you do actually get a project, like “oh...”(...) you can’t keep control of that”. The urgency to place bids on such occasions increases the risk of it becoming a burden rather than an opportunity later. This is why it’s important to have discourse about the *likelihood* that profitability can actually be achieved:

It’s quite a rigorous process in terms of how the decision is made, but all of these factors have to line up. Do we have the right staff to carry out this project? What are the challenges in the project? Who is the client? What is the client’s financial situation? Can we find subcontractors who can do this? Do we trust the specifications? (CFO)

Hence, there is neither an algorithm nor general rule of thumb for whether a project is going to be good or not. Each project is treated on a case-by-case basis through active discourse in a scheduled weekly meeting on Mondays with the Cost Estimation Manager, the CEO, and the CFO. In the Monday meeting the Business Area Manager explains: “We go through what we’ve found, what it looks like, whether we’ve received any responses. It’s more of an overview. And then we have another system called UpSales where we enter those parts”. He continues, on Wednesdays the Cost Estimation Manager and the Business Area Manager go through the pipeline “a little more in depth” to prioritize the most relevant bids, which is largely based on the team’s prior experience and intuition.

Despite the rigorous screening process, the company does not yet have the reputation to consistently win good projects. Some bids are lost simply due to its small size, as “a lot is brand, absolutely (...). Many ask, ‘who is M-Roc?’” (Project Manager 3), while for the projects they do win, the quality of procurement documents varies significantly between customers. At times, information is incomplete or infeasible, leading to hiccups later on. Conflicting

interpretations of design choices or ‘who pays what’, can eventually escalate into legal disputes: “Some [clients] always push the legal side, so they’re very difficult to deal with. In 1990 there were maybe eight construction lawyers in the city. Now there are probably 400. There’s just so much legal stuff” (CFO).

Turning down too many tenders, on the other hand, would leave people at head office without billable work and increase overhead costs. In an industry with intense competition and inherently low margins, management is constantly walking a tightrope between high overhead costs and large losses from “surdegar” (sourdoughs):

When you run a project, you take personnel costs from central overhead and move them into the project so you reduce the central personnel costs you carry. That’s the efficiency (...) but with that said, the big thing for being sustainable in construction is to avoid stepping into duds or ‘sourdoughs’. (CFO)

To guide their work and improve the chances of winning good projects while keeping staff busy, the company has set a goal to submit eleven bids each month, lose nine, and win two. This selective bidding strategy places constant time pressure on the cost estimation team as they work to maintain a steady flow of tenders: “Everything has a deadline, all the time” (Cost Estimation Manager).

Cost Calculations: technology-enabled but experience-based – demanding a future time perspective

The initiation stage is critical: all subsequent phases of the project are path dependent on which tenders are selected and how those bids are priced. Once a deal is signed, the cost calculations embedded in the estimation software Bidcon become contractual, locking in the prices the customer will pay for materials and subcontracted work. Primarily the cost estimators and the procurement function work extensively in Bidcon. For the rest of the organization, the system becomes relevant only once the project moves into execution and the calculations are transferred into Next – an extensive project management software. As the Systems Manager explained: “Bidcon is only for calculation. Then we have Next that is our project tool. When we start up the project, that’s where we load in the calculations. We prepare our budget forecast, we handle questions–responses–change orders, we create the billing plans [in Next]. So I think that right now, Next is more the financial side for us. We invoice there, the approved invoices come in there, and we do our monthly forecast there.” (Systems Manager)

In this sense, Bidcon and Next together form a communication chain that links planning to execution. Once a bid is won, the stored calculation is transferred into Next, sometimes months after it was first created. Each year the cost estimation team produces around 130 bid calculations, though only a fraction ultimately moves forward. These systems therefore help bridge the temporal gap between estimation and project start by preserving and re-activating information when the project becomes operational.

Decisions made during initiation echo through later stages, where the time from cost estimation to project start can be as long as six months. Hence, it is incredibly important to store precise calculations through the systems in case a project is won. When the stakes are high – cost estimates for projects can range from a few million (SEK) to nearly 100 million (SEK) – it puts significant stress on those involved, as the Cost Estimation Manager put it “the thing is, it’s a lot of money. The slightest mistake in anything can... hit really hard, you know?”.

While the current systems are essential for offloading information and enabling the team to handle a high bid volume, employees still note that “[we] just have too much in our heads” (Cost Estimation Manager). Even when systems are exhaustive, they remain incomplete. Much of what makes a calculation “correct” depends on tacit judgments – assumptions about constructability, risks, and client behavior – that cannot be fully inscribed into any tool. As a result, cost estimators must keep track of exceptions, uncertainties, and unwritten considerations alongside the formal numbers in Bidcon.

Price estimation is performed in Bidcon, supported by Bluebeam where the team “can enter quantities and do the quantity takeoff (...) getting the whole groundwork done properly” (Systems Manager). However, in a rapidly changing market, if a cost estimate has been too optimistic or a tender investigation incomplete, the project may begin at a loss. When something is forgotten and not accounted for in the cost estimation but is still contractually required, it becomes difficult – if not impossible – to recover those costs later:

If we’ve missed something in the calculation, then it’s like, okay, we’ve completely missed this. It’s written in black and white that we have to deliver. But we haven’t included it in our calculation. Now, that doesn’t happen very often. (...) We usually include everything from the start so we don’t have to worry. But if something like that happens, we have to bite the bullet. (Project Manager 3)

One instance where this happened is when the Site Manager was assigned to rebuild a local school. After receiving the calculations, he quickly realized that the “[external estimator] had miscalculated terribly. I found tons of things he had forgotten (...) and I knew I was starting at a loss.” Such miscalculations impose immediate temporal consequences, forcing the Site Manager into an intensified present-time orientation in which rapid improvisation was needed simply to keep the project viable.

While the role of the calculator may appear relatively standardized and systematized, this is far from the case. Even though the external consultant used the software, the systems could not be relied upon to produce a “correct” calculation. The Site Manager explained this well, illustrating just how intricate project cost estimation can be:

Based on the client’s documents, the cost estimator must calculate how many meters of piping, how many walls, how many windows, how long it will take to do the work (...). [And while] today’s estimation software keeps getting better and better (...), it doesn’t end there. You also have to think (...): It’s on the 30th floor, there’s no elevator. This is going to be expensive. Are you going to have people carry materials all the way up there? Or use a crane that can reach that high? What does that cost per hour? How do you get it in? How do you get all the debris out? What does the staircase look like? (...). These are the kinds of things that make an experienced [cost estimator and] purchaser successful.

Feedback Loops: Reciprocal interdependence between cost estimation and production gets disrupted by the scarcity of time

Experience and intuition are what makes a cost estimator successful. This can’t easily be replaced by systems. Each project is unique, with countless specificities that can’t be generalized. Intuition is built from continuous feedback loops, internalized after good and bad

project outcomes. However, feedback meetings happen far too seldom at M-Roc, which undermines the cost estimator's abilities to place good bids:

In tendering now, we're going to have regular check-ins for experience feedback, which is great... But the thing is, everyone is busy with their own tasks, so it's hard to make the time for it. (...) Time goes fast and you're just fully caught up in your own stuff. (Cost Estimation Manager)

Even when feedback sessions do take place, another temporal challenge emerges – projects at this stage are still potential, not yet “real”, which makes it difficult to get meaningful engagement from the production side:

Another problem (...) is that these are only potential projects (...). In the early stages it's like they're (the production team) almost half asleep. They don't have time to read through everything and give good input. And so you keep doing it again and again. (...) It's on us as estimators to get that experience feedback (...) to get the information: What is it that has gone wrong?” (Cost Estimation Manager)

The lack of communication between the cost estimation and project teams means that the cost estimates become sort of a ‘black-box’ (Lowe, 2001) at times riddled with suboptimal calculations. The two teams have a reciprocal interdependence, “the outputs of each unit become inputs for the other units” (Ballard & Seibold, 2003, p. 402). Regarding M-Roc, the nature of reciprocity spans over long time horizons, from one project to the next, making it difficult to ensure information sharing because it's seldom urgent. What may appear as a lack of interest from the production side is, according to the Cost Estimation Manager, partly rooted in trust issues and in how calculations are perceived: “You don't really trust the calculation, many see it more as a price indication” (Cost Estimation Manager). He explains that this lack of trust stems from earlier experiences where the calculations did not match reality, often because weak feedback loops meant that errors were never fed back to the estimators, which has resulted in that “[production] doesn't use the knowledge or the material that we produced during the calculation. Instead, they start over again from scratch” (Cost Estimation Manager). This divide is further reinforced by temporal and spatial separation between the teams:

We basically only see each other at parties, you know, the Christmas party or the summer party or things like that. Often they're away like at [Project X] for example, they're out there for two years. Then they're here maybe between projects or briefly during a design phase... (...) we never actually see each other. So it's important for us to push for these experience-feedback sessions. (Cost Estimation Manager)

Mobilization and pre-construction

“When should you have started? Yesterday, preferably.” (Project Manager 1)

Transition Meeting: Future time clashes with present time perspective in aligning when profits should be made

Here, the project team is officially assembled, site investigation is conducted and then procurement and project delivery plans are made. It all starts with a kick-off meeting where the cost estimation team transfers knowledge and calculation documentation to the execution team:

When you have won the project, then you [cost estimator] sit down with the intended project manager and the purchaser. And then you review: How do we view this? So we have a handover meeting. And there you identify the potential. But even when you accept the tender, (...) there are risks and opportunities and already at that point, you are talking about these risks and opportunities: ‘(...) it may be that you see an opportunity for “ÄTA” here’ or ‘there is an opportunity here to do more with purchasing’. You bring that with you.” (CFO)

These strategic meetings represent a feedback cycle bridging phases: lessons from planning (e.g. risk exposures, potential procurement gains, critical-path concerns) are fed forward into execution. The team collectively looks ahead, using information from the bid phase to mobilize action. Communication becomes essential for activity coordination, allowing the team to align expectations, surface assumptions, and negotiate when and how value can be realized in the project, especially as each project has its own opportunities to increase profits. However, interviewees emphasized that the effectiveness of this handover ultimately depends on individuals. As the CFO noted, although there are documented routines on the shared intranet – ‘M-Roc’s way of working’ – “it comes down to the individual. And the interaction between different individuals” whether those procedures are actually followed.

This dependence on individual enactment is also visible in differing views on procurement strategy. While the Business Area Manager emphasized that procurement gains are essential: “(...)but stop! The purchase profit is part of the main profit.”, and the Site Manager similarly noted, “I always bargain (...) it adds up to a lot of money,” the Procurement Manager challenged this as a short-sighted approach:

I’m not particularly interested in purchasing gains because I think it’s incredibly short-sighted. (...) If I buy the electrician for two million and make a huge profit of one million but he maybe didn’t include everything, then that’s not that interesting. And maybe it won’t be clear until the end.

These contrasting viewpoints reflect different temporal construals of what procurement *is* and *when* value is realized. For the Business Area Manager, profit should run through all project phases, already at the moment of purchase, while the Procurement Manager instead enacts procurement through a longer-term temporal horizon, emphasizing downstream consequences that may only become visible at the project’s end. Their divergent views illustrate how temporal perspectives shape not only decisions but also interpretations of roles like what “*good*” procurement looks like. These differing temporal orientations make early alignment essential. Since project value can be realized across multiple time horizons, in the words of the CFO: “Making the most of a project is different every time”, the team must reconcile their expectations at the outset to avoid later friction. This is why the initial kick-off becomes a crucial activity coordination, setting expectations before starting production:

You go through all the items and say, ‘Here, I can probably work a little on the purchases’. That could be a factor. And then you can negotiate your way to that. But that’s not always the answer, because if the calculation has driven purchasing quite hard, there’s not much to be gained. Plus, you have to have a long-term

dialogue with your suppliers. Otherwise, they won't want to submit bids to us in the calculation stage either. (CFO)

Project Upstart: Flexibility is needed when reality breaks plan

Before construction can begin, a range of preparatory activities must be completed: securing permits, refining schedules, lining up subcontractors, arranging site facilities, and approving safety plans. Interviewees described a consistent sense of time scarcity and stressed that they often feel behind schedule from day one.

You have to be good at administration to get everything started before you break ground, so to speak. (...) it all comes down to time and money. That's what people talk about most often. Too little time, you have to start – 'When should you have started? Yesterday, preferably.' It was already too late. But that's often the way it is. (Project Manager 1)

All preparatory activities are inscribed into a 'Beställplan' (time plan), 'Lyftplan' (billing plan), and 'Produktionstidplan' (production plan), which all need to be aligned with each other. These are highly detailed plans for when activities *should* happen throughout the project lifecycle.

Everything is linked. Yes, we have a schedule called 'Beställplan' [time plan]. Everyone looks at that. This is what it should look like. This is how the project should be built. Then you go into a bit more detail. That's when you come to a production plan [produktionstidplan]. That's the one the site manager has designed. Which is more detailed about where we do the doors, where we do moldings, trim, casings – that whole part. And procurement also looks at that. Okay, now they're going to start with the doors on this date. Then I have to purchase it a certain number of weeks in advance. (Project Manager 3)

He continues explaining that if any changes happen to the production plan and the time plan, for instance, if the installation of the doors will be delayed then "we can't bill (the client) for the doors. So I have to go in and change the billing plan".

Once these plans are finalized, the project work on-site begins and suddenly everything is real. Despite rigorous initial planning, reality does not match expectations. A good example of this relates to a major project where the Site Manager found that the foundational concrete was incredibly weak, which was not documented by the customer.

We got the keys on April 1st. And then we walked around and looked, and then we saw the pillars in the swimming pool... You could see the reinforcement mesh. Or the reinforcement inside the pillars. Then it was like, 'This doesn't look so good.' So we brought in a concrete engineer to take a look at it, and he just said, 'Oh, this doesn't look good at all.' Maybe we should do a concrete survey to see what it actually looks like under the whole pool and around it. And that's when it came to light. (...)If we had ignored it and just looked the other way or not noticed it, then the entire roof would have been compromised. It could have collapsed, and then everything would have fallen like a house of cards. So it was incredibly fortunate that we caught it. (Project Manager 3)

The discovery collapsed the planned temporal sequence and forced an abrupt shift into urgent, present-focused problem-solving – an example of how unexpected events trigger temporal flexibility and disrupt the future-oriented assumptions embedded in pre-construction plans.

After aligning internally, the team quickly reached out to the customer to clarify that this was a substantial issue that needed correction and would cost both time and money – already deviating from the initial plans: “(...)It cost accordingly [but] I think the customers are ultimately grateful that we found it.” (Project Manager 3). This is one of those cases where open-book contracts become especially valuable, benefitting M-Roc with a contract addition and the customer with a more robust renovation.

As this project was described as having a “tight cost estimation” with little room for procurement gains and a very hard deadline, the discovery accidentally freed up time and led to a second source of income through ‘ÄTA’, which could be quite effectively integrated into the preparatory demolition phase before the final architect drawings and documentation were delivered. Worth mentioning is that this, of course, came with the fact that the Site Manager is renowned as a skilled negotiator who naturally builds good relationships with both his team and clients. This example also shows how adaptations to preliminary schedules were made, and parallel processes integrated to effective end results.

Mobilization of Procurement: A non-linear process that relies on informal feedback

In this pre-construction phase, procurement takes over the estimator’s role in planning for and eventually realizing the actual purchases of not only materials but also subcontractors. In the words of the Procurement Manager:

We have site management; so we have a site manager, supervisors, and a construction engineer who sits and builds and manages. But we don't have any craftsmen who actually do anything. So for every single thing we need to do, we have to hire someone to do it.

These purchases are handled in the system HandyDay, where tenders are issued and subcontractor quotes received:

We keep track of our suppliers there [HandyDay]. We send out our requests for quotes. We get their responses. It’s a really great tool. There we can see what this subcontractor is like and whether they meet our requirements. (System Manager)

Over time, subcontractors accumulate a performance history, creating a memory that helps guide future decisions. According to the Procurement Manager, those who repeatedly cause problems are placed on a *spärrlista* (red list): “If someone doesn’t work well (...) then we have a red list. So we have a list of companies we should not work with”. Yet in practice, this mechanism is rarely maintained as intended:

It’s not used very actively. (...) it ends up looking like an overall rating with lots of stars, but if you look a bit closer, it’s only filled in from the estimation side – that they think the dialogue worked great during the calculation phase. What we really need here is input from production.

To bridge this gap, she took on a second role, trying to manually collect feedback from project teams:

I made a little push this spring and booked meetings with those whose projects were about to finish. I sat down for half an hour with each project and we went through their list: these are the subcontractors you’ve had – what did you think of them?

And then we put the stars in together. But I don't think I should have to sit down with them like that. I think they should be able to handle it on their own.

Similarly, for these purchases, ideally, the production should drive the delivery schedule, but when staffing is thin, procurement steps in: "My wish is that production is very active in making delivery plans... [but] in this case, I did it" tells the Procurement Manager as she speaks about her current project. This reflects that the blurring of role descriptions increases the need for individuals to be temporally flexible, rescheduling tasks as needed in a project. The creation of production and procurement plans are regardless tightly interconnected and development happened in close collaboration and coordination between the two parties:

The site manager (...) has made a schedule from the beginning. Then we usually look at it together. I draw up a purchasing plan: what order we should do the purchases in and how long they should take. Then we need to check in on it continuously. How is production going? Now I'm going to call it off. Do these times feel right? (...) When do you want them to start? (...) When should they be finished?
(Procurement Manager)

Timing, sequencing, and precision are all critical here. While a plan is a plan, the questions raised at this stage need to be actively monitored and updated throughout the project timeline, ticking off purchases as execution unfolds. Ideally, mobilization is a *linear* straightforward progression (kick-off meeting → site setup → day 1 of construction), but in reality, it involves informal feedback loops and rework. For instance, late design changes or client clarifications might arrive just as mobilization starts, forcing the team to revisit plans. This coordination happens on an ongoing basis from pre-construction to delivery through: "(...) weekly meetings where we check in on how things are going in general and what's happening right now" (Procurement Manager). From a temporal perspective, these recurring meetings function as *feedback cycles* intended to regularly resynchronize procurement with production. Yet in many instances, this is not enough. Carving out time for formal reflection is described as difficult. People tend to roll straight onto the next deadline. As the Purchase Manager noted: "We are working on getting better at that [knowledge transfer]. But we don't really have a good routine for actually making it happen.". So, when the pace is fast, informal feedback loops instead become key to staying up to speed:

It's so individual. (...) Sometimes someone just calls me and says, 'What do we do?' and I go, 'We do it like this.' 'Great, thanks.' Click. Or I might say, 'Damn, we have a problem.' 'Okay, come in. Tell me, what's the problem?' 'This.' And then we sit and discuss. (Business Area Manager)

Feedback takes different forms depending on individual preferences as reiterated by the Procurement Manager: "I think communication is very mixed and individual specific. And it can also be like this: 'Sometimes there's a phone call, sometimes an email, sometimes a text message, sometimes it's Teams.'", illustrating how flexibility and low temporal separation (being continuously accessible) become necessary as coordination unfolds across multiple channels, whenever the situation demands it.

At the same time, the Business Area Manager emphasized that the goal is not necessarily more formal feedback, but rather building a culture where people learn by doing, gradually becoming confident decision-makers rather than relying on managers for every answer:

Next time you call and I say, ‘come into the office but deliver a finished proposal’, and the third time they call they say, ‘No, actually, I’ll fix it myself’. (...) The most important strength in a person is daring to make mistakes because if you make a mistake and face the consequences, then you learn something, and you never do it again.

This highlights a deeper paradox in the organization’s temporal and learning practices. On the one hand, overly formalized routines are neither desirable nor realistic: managers want employees to take ownership, learn by doing, and build confidence through experience: a culture of ‘fail, learn, and move on’. Under high temporal pressure, this translates into temporal enactments that favor rapid, informal exchanges and low separation between actors because that is what keeps the project moving. On the other hand, the organization simultaneously strives for structure: clear routines, follow-ups, and diligent use of “the M-Roc way” to avoid repeating costly mistakes. These ambitions reflect a more institutional temporal construal – the belief that better systems and consistent documentation will stabilize future work. In practice, these two temporal logics pull in different directions: informal, fast, experience-based learning versus formalized, system-driven prevention. Balancing them becomes an ongoing challenge.

Finalizing the Drawings, Freezing the Timeline: How early design bottlenecks delay linear work

Delays often start early, already at the design phase. Besides being important to get all the drawings right to avoid later downstream issues, clients frequently provide outdated or incomplete documentation so that designers have to make sure reality match documentations.

I do lots of site visits. I try to get to know the building (before renovations), look and find old drawings and ask, does this match? (...) What is missing? Then we hire designers (...), we form a design team with a structural engineer, an architectural firm, a plumbing and ventilation company, and then there's sound, an acoustics company, a fire safety company, yes, and electricity. (...) I am the design manager (...) responsible for ensuring that the designers complete their tasks on time. (Project Manager 1)

Which they usually don't. Yet to “finalize” the plans (plans that are never truly final but continuously iterated) the team needs input from these drawings. So, the project must wait until they're right and ready.

The entire project team (...) are waiting for the actual drawings for how we are going to build it. So that's a bottleneck (...) When we can finalize it, we'll have everything in print: this is how we're going to do it, this is how we're going to procure it, this is how it's going to be and then we'll finalize the schedule as well. (Project Manager 3)

And not until documents are up-to-date and delivered to the project team, and the plans are revisited, ‘action’ phase is starting.

Execution and construction

“Right now it’s just like releasing the Vasaloppet. Everyone goes off in different directions.” (Business Area Manager)

Production Starts: When present-time urgency clashes with linear plans

The Execution phase is the heart of the project, where the actual construction takes shape. What was a future scenario now becomes an imminent reality, shifting the time orientation from future-oriented planning to the *present* short-term urgency, where tasks must be interpreted in terms of what needs to happen now.

Where time can fly by and you feel like shit, it's really right in the middle of production. Depending on how many people you have there, you have to keep them under control. Things can go quickly or come to a standstill. (Project Manager 1)

At this point, coordination challenges intensify. As the Business Area Manager put it, “Right now it’s just like releasing the Vasaloppet. Everyone goes off in different directions.” His metaphor captures the difficulty of aligning multiple actors: clients and subcontractors, site management and internal teams – who all enter the project with different levels of knowledge, priorities, and ways of working. Without sustained communication and shared routines, he explains, each actor follows their own trajectory, making it hard to maintain a unified direction and increasing the risk of costly misunderstandings. As a result, the linearity planned in earlier phases now meets a reality of non-linearity and *event-time* logic often overtakes the *clock-time* as the sequence of work adapts to events as they unfold rather than strictly to the schedule or Gantt chart. A project manager explains:

Anything can happen, from someone getting injured, to deliveries, to something breaking. Someone makes a mistake, a fire breaks out, there could be a break-in, anything could happen (...) You have to bring in deliveries, you have to take out materials, demolition waste. It all looks great at the beginning when you shake hands and think, ‘Great, now we have a project to run,’ and then it can all go wrong on the first day: you find some real crap in the ground, which brings everything to a halt and costs an extra 5 million. (Project Manager 1)

Much of the work is visible on-site, but an equally important layer of work happens invisibly behind the desks. In practice, two parallel worlds must coordinate continuously: an office-based one (finance, procurement, management) and an on-site one (site management, subcontractors). Bridging these domains requires communication structures capable of translating lived, event-time production *into* system-time representations such as schedules, invoices, and reports and sometimes vice-versa.

Timing Invoices: Matching costs with performance for percentage of completion accounting

Individuals whose daily tasks sit precisely between office-based systems and on-site production play a crucial role in translating one world into the other. Their work turns lived, event-time activity into the financial and administrative representations that management depends on. This translation becomes concrete in the role of the Construction Engineer: “I’m responsible for the finances [of this project] (...) when all invoices come into the project, they come to me first, (...) then I assign them to the accounts they relate to.” (Construction

Engineer). Much of this work revolves around maintaining the temporal flow of documentation:

What takes most of my time, really, are the invoices and the meeting minutes. I deal with those constantly because we need a continuous flow of invoices. (...) The controller is on me all the time. We have this strange thing with percentage-of-completion [POC] revenue recognition, where all costs have to be entered at the same time as you try to hold them back.

The submission of invoices is an important process since it translates project progress into measurable financial figures which the management can use for control and forecasting. However, even being physically present on-site does not guarantee alignment between financial representations and unfolding work: “I sit here on-site, on my computer all the time (...) so I don’t always know everything that’s happening” (Construction Engineer). This illustrates that spatial proximity does not necessarily translate into temporal visibility: knowledge still moves through people rather than systems, and insight depends on relational rather than positional access meaning that the systems are never truly up to date.

POC creates two opposing temporal pressures: costs must be recognized immediately, but project managers simultaneously try to delay them to avoid paying out of pocket or “banking” the project and to protect cash flow. As the Controller explained:

We don’t want to have more expenses than [the value] we have invoiced for, preferably. We want to be a little ‘forward heavy’ in our billing⁷. That’s how they are often laid out. And when we see that the opposite is true, it can usually be a signal [of something bad]”. (Controller)

This signals that the finance function also uses POC-based forecasts to try to capture early warning signals. Once invoices are submitted, the Controller merges financial data across projects, requiring timely inputs from every project:

Yes, of course it’s administratively burdensome. But if we’re going to close the month, we need to have delivered results, we need to keep track of liquidity, so we need that input [invoices from each project manager for each of their projects]. (Controller)

Unfortunately, this doesn’t always happen on time in practice, “that’s why we keep nagging about it” (Systems Manager). This implies that using project finances to gauge project performance can lag reality. Subsequently, the Systems Manager introduced an invoicing dashboard on the intranet, visible to everyone, serving as a gentle reminder for employees to add their billings on time.

Billing the client in a timely manner is also important as it keeps liquidity in the project: “‘Lyftplanen’ (the billing plan) is the economy. It is essentially the money we lift to the client each month.” (Project Manager 3). While invoicing is straightforward when supported by

⁷ This is when the client pays a little more than the costs incurred during the month, giving the project more financial flexibility.

proper documentation (especially for ÄTOR), the process is often delayed by client-side negotiations:

In one way, it's very easy to invoice based on a billing plan, but it's not uncommon for (...) the client to set requirements like: First we have to have the financial meeting, then we have to agree on what to invoice, and then we can invoice. So it can be really difficult to invoice sometimes. It's tough. Those who want to cause trouble, cause trouble. Our weapon to ensure that we get to invoice is to stop working. And you don't do that very often. So sometimes it's difficult to get invoicing done. And some feel reluctant to go about it. (...) So there are a few steps involved; you can't just send the invoice because then you can cause a lot of irritation; you have to have an agreement. (CFO)

Typically, this agreement is tied to demonstrated progress, meaning invoicing must correspond to actual production: "They want us to produce a billing plan and a schedule. You can't invoice 10 million the first month when nine months remain – they'll say, 'Finish the project first then you'll get the money.'" (Project Manager 1). As production unfolds, these plans are therefore recalibrated:

[If] we thought that we would be 20% completed with the construction by today, but were not there yet. (...) then we need to adjust the billing plan toward the client so we don't invoice too much (...) [so] it always matches the production schedule (Project Manager 3)

In this way, billing must be constantly realigned with the actual pace of construction, showing how temporal dependencies between schedule and invoicing are enacted day by day rather than set in advance.

Timing of Purchases: When system rigidities create informal communication dependencies to keep procurement aligned with production pace

The timing of purchases is not only relevant from an invoicing and cash-flow perspective; it is also crucial from a delivery standpoint to ensure that materials and subcontracted work arrive when needed: "The delivery date and when it needs to be ordered – that's very decisive. Because when it's supposed to be on site, it has to be on site" (Procurement Manager). If materials come too early, they must be handled and stored, wasting time and resources. If they arrive too late, subcontractors cannot proceed with their tasks. This is why continuous dialogue between production and procurement is essential. Informal communication serves as a smoothing mechanism to uphold the linear and scheduled order of the time plan. The Procurement Manager shared an anecdote illustrating what happens when formal reconciliation fails: "A supervisor contacted me and said, 'Now I've been notified that a bunch of windows are coming... What kind of windows are they?!' (Procurement Manager)

In her opinion informal communication is "(...) the only way to get that kind of information". She received the text without any pre-warning, a kind of interruption that exemplifies the project's flexible temporal rhythm and the continuous mutual adjustment required in procurement work. Even if the form of communication does not necessarily cause stress, although the Procurement Manager noted that: "Maybe that contributes on some subconscious level", what is stressful, rather, is the abrupt shift in focus required when unexpected issues arise. This constant switching – dropping one task the moment a new issue appears – reflects

a low degree of separation and creates a persistent sense of temporal urgency. In such moments, the focus becomes “(...) just about solving the problems” (Procurement Manager). In this case, the delayed window delivery required immediate investigation: retracing delivery plans, checking old emails, and reviewing supplier notes.

This anecdote reflects the project’s inherent dependence on real-time coordination to keep procurement aligned with production and illustrates the problem that arises when: “The delivery schedule has just been left as it is. And production has changed its schedule. And no one has updated the delivery times” (Procurement Manager). As these plans often sit for months and production later shifts its timeline, mismatches arise if not synced with delivery. To avoid this from happening, the Procurement Manager believes workplace technologies, like Next, should get better at: “Linking the delivery plan to the schedule. It feels like you would need a different system to capture that. Just when things change in the plan, it kind of rings a bell: ‘Remember that you have to change this!’”.

From the procurement side, there is little more to do than rely on the on-site counterpart to coordinate in time, tick off purchases according to schedule, and document these steps appropriately. One such documentation procedure is the *egen-kontroll* (self-check) related to the purchase plan, which she described as time-consuming and not always meaningful:

Maybe they don't want to hear it, but I'm not involved in it very often. I think it's very, at least from a purchasing point of view, it's very like: I do these things fifty times in a project. If it's a larger project, then it's like: check the supplier - I don't know what to fill in. Once I've started a purchase and marked it as started then there's not much to do for the project. So I don't think it's very helpful. Other than that you can look at it sometimes. So that's it. That also needs to be done. (Procurement Manager)

Rather than acting as a helpful tool, the self-check often feels like extra work. The same reasoning applies to the irregular use of the purchase plan, which is frequently set aside when the workload increases.

It also becomes a bit periodic (...) with the purchase plan and filling things in. When I feel like, ‘this takes too much time’, then I skip it instead. I don’t let it take that much time – because the time simply isn’t there. (Procurement Manager)

While the inherent time scarcity is one reason for this abandonment, a second issue lies in the nature of the tool itself. As the Procurement Manager noted: “in this purchase plan I can enter the purchase amount and contract date and so on, but it’s all manual and simply not prioritized,” adding that “I would like it more visual [like a Gantt chart].” Together, these comments reinforce that the system must fit the user – in this case: more time-aware, with real-time updating features.

Rather than guiding action, therefore, systems can become a burden when work intensifies. This shows that not all systems or formal control mechanisms fit the temporal reality of everyday procurement work. The self-check, intended as a routine safeguard, clashes with the high tempo and urgency that characterize the Procurement Manager’s daily rhythm. For an activity performed many times a day, the additional documentation becomes overkill – another task competing for attention in an already time-scarce environment. While few have interest –

or the time – to engage deeply with such documentation, our interviews illustrate how essential communication and coordination around purchases remain for keeping production aligned.

Formal Control: What you can and cannot see through systems, a point of friction at scheduled reconciliations

We have described how informal communication fills the gaps when schedules shift or unexpected issues arise. However, these informal exchanges function only as complements to the formal communication channels that structure everyday coordination. As the Controller explained, “It’s phone calls and emails, Teams, ad hoc meetings, *in addition* to these standard meetings we have”.

One important ‘standard meeting’ he refers to is the scheduled, monthly feedback forum called ‘Projektbarometern’ (Project Barometer). This is when managers on site and the relevant parties off-site sit down and discuss the progress for the past month:

The project manager presents their project; they talk about the finances, the schedule, the risks they see, the workload, everything that can give an indication of whether everything is going well or not. This allows us to assess the risk in the project. (Controller)

In principle, these reviews are meant to catch early warning signals. As the CFO put it, “We call them ‘surdegar’ (sourdoughs)(...) [when] the project suddenly ‘goes down the drain’. (...) We want to find out before it’s too late”. Even if proportionally, there might be only 10-20% of the project portfolio that ends up as sourdoughs, the Controller explains, if they: “(...) fail, unfortunately, they can wipe out all the positive from the remaining majority of the project we run”. Therefore, they try to get a holistic picture of the state of the project during such reviews to look not only at numbers but also at qualitative indicators, for example, the site attendance log to see if manpower on site matches the plan. Yet several interviewees noted that the manually inputted data from production feeding these reviews is often incomplete or delayed: “Three, four months later we can see it in the finances, lots of money missing (...) we have tons of systems (...) but still, these things happen anyway.” (Operational Owner). As the Controller explained, “I don’t feel we can have that level of control out on site; it’s difficult to get it into the system, to document it methodically and routinely so that you can see when things start to deviate”. This highlights a structural limitation: the systems operate at fixed intervals, while the project moves continuously, meaning that human input can never keep pace with the rhythm on-site – at least not without heavy administrative work. As a result, the reality of production often surpasses the timing of the system. Thus ‘sourdoughs’ often only become visible when it is already too late.

While digital systems such as the Project Barometer and the SharePoint folder structure are important control mechanisms for management, if a project had all the ‘right’ people, arguably only minimal structures would be needed, as the CFO reflected “All sourdoughs are caused by the wrong personnel, not the wrong process. The right people never end up in sourdoughs”. Personnel issues often arise as “a question of culture” – a reluctance to ‘air dirty laundry’ and a tendency to hold back crucial information, trying to solve issues on their own, until it’s too late. Hence, building a more time-aware and communicative culture that encourages earlier flagging of issues is described as a key priority going forward: “We have a cultural journey ahead of us: a strong focus on recruitment, culture and perhaps getting the management even closer [to the projects]”. It is recognized that “structurally there is, based on the systems we

have, an ability to see everything” (CFO), but the early signals don’t show up. While system integration has been pursued to capture early warning signals, there is a growing realization of its inherent limitations:

The process is in place, but you can never prevent a person from not telling the truth (...) the system cannot catch everything, you can sometimes see certain signals, but you have to be so damn close. So the process is not enough. (CFO)

This acknowledgment underscores the necessity of direct, personal proximity to project sites – systems alone cannot substitute for human judgment and presence. This is exemplified in how the Project Barometer is (not) used:

‘How’s the project going?’ – ‘It’s going fantastically well, everything is according to plan’. You don’t see anything; it all looks great. And then three months later, the project is in total collapse. Everything we talked about three months ago turned out to be untrue but the system can’t capture it. (CFO)

The Project Barometer is an excel-sheet that each project site fills in monthly, giving status updates on several key performance indicators. It is a simple tool to synchronize and make sure everyone is up-to-date and to surface all new happenings and relevant information, however, it has not been effective in surfacing core issues in production:

It is my clear opinion that we need to make it [the Project Barometer] a little more uncomfortable. You can't be too nice – you have to challenge each other to get to the heart of the matter and identify where we have problems. So even though the process is good, we need to have a different attitude to the process: Why did you do that? (...) Show documentation for this, (...) be a little more demanding. (CFO)

According to the Operational Owner: “(...) this monthly Project Barometer is once a month. It feels like it should be once a week”. The Business Area Manager expanded on this concern and explained that the current setup has been widely discussed during the past strategic meeting and plans are that it will be modified:

[The Project Barometer] is not good enough. (...) it's just a quick in and report out, ‘next one’. It becomes an assembly line, so you don't get any useful information, and you can't really reflect on what's happening in the projects. So now we've decided to spread this out over a week instead.

In the future, the CFO explained, the management also plans to visit projects on-site, noting that: “It's difficult for the smallest projects, but for larger projects it definitely works because we are geographically located in Stockholm.”, and while it is an economic trade-off between resources and value-add of conducting such on-site visits one can view it from the other perspective: “the cost of failing a project is enormous, so of course everyone can spend an afternoon going out to visit the project if it means we might avoid such a situation [of untimely, incomplete or inaccurate communication when handled at HQ].

This shift is welcomed among site staff who feel that HQ doesn’t fully grasp the situation. Without actually seeing what is happening on the ground, the managerial interrogations, both during these meetings and throughout the month, intended to increase control can feel forced. As the Site Manager expressed it:

When you sit and go through a forecast, a budget in the office, (...) it sounds like a very poor defense from our side when you sit and just look at the numbers: ‘Yes, but you understand that then the machine broke down... and there was this and that...’. They don't understand what we're talking about, and I just feel like it sounds like a fool's defense speech. (...) Then we are far from each other.

He continued that those “higher up” often “only get to see numbers” and “may not even go in and look at these reports that we write and do,” which is why visits matter: they allow managers to see the lived conditions behind the figures. This reflects a form of spatial separation in project work: a gap between the lived, real-time rhythms of production and the abstracted world of forecasts, deadlines, and periodic reporting at HQ. At a distance, system-based controls can feel coercive, as judgments appear to be formed without context. Yet when managers come on site, the same controls come to life through dialogue, grounded in an understanding of the temporal realities of breakdowns, delays, and unexpected events. Reducing this spatial separation through physical co-presence helps re-align managerial interpretation with the unfolding pace and contingencies of production. At the same time, too much central oversight risks undermining the very autonomy needed to handle everyday project work:

Let them have this trust as well. Not that someone higher up just comes (...) [and demands that] we have to explain why the logbook looks a certain way? Right. They should come in if things go really wrong – maybe when there's a legal issue. Otherwise, let them work with trust and simply follow up. (Project Manager 1)

This quote exemplifies that on-site project organizations would like hands-off, trust-based management, however the HQ has increasingly formalized system-based controls due to a string of poor project outcomes. Another such formalized control is the SharePoint folder structure. This folder structure is created in Next and SharePoint at project initiation. Throughout the project employees are obliged to insert all project documentation: contracts, technical drawings, risk assessments, correspondence with subcontractors, inspection reports, and countless other artifacts of construction work. The Systems Manager explained the ideal: “All documentation should go directly in [the folder structure]. You shouldn't have it in your email. And you know yourself, when you get tons of emails and it sits down there and you forget about it”. This folder structure serves two essential roles. First, it is used by HQ to monitor project status, intervene when problems arise, and ensure regulatory compliance. Second, once the project is complete, the folders will be handed over to the client giving them full access to the project overview. Yet this vision of transparency through documentation confronts a stubborn reality: the folders are rarely up to date:

I feel like we do have systems, we have processes, routines – but the real challenge is that everyone actually follows them. And that's really the issue. It feels like people haven't understood them. They don't have the time. They can't keep up, or they're just careless, you know? So there are many different versions of it. A lot of it comes down to the individual and how they manage their project. (Systems Manager)

The primary reason for non-compliance, according to management, is time pressure. Construction work unfolds in real-time with immediate demands from clients, subcontractors, and internal staff. In these moments, the multi-step process of finalizing, uploading, and properly categorizing documents feels like an impediment rather than an aid:

When you're in a time crunch, it becomes that you can have things saved locally. And it's purely structural, going from a working document to a final document. Getting all of that with signatures and so on. It's complex. Because it takes a lot of time, and maybe that time doesn't exist. (CFO)

Documents are often saved locally on email, WhatsApp, HandyDay, and the plethora of programs used within the organization, or agreements are made vocally without written documentation. When the folders are not continuously filled in, it has profound effects for how managers can track project progress:

The idea is that everything should be moved over to SharePoint (...) But right now, it's basically empty. And that really frustrates me because... I can't spend all my time and energy going out to the projects and checking how things are going all the time. If I did, that's all I'd be doing. So, I go into the folder structures and follow the construction meeting minutes and see what decisions were made. But today, I see nothing. And that's become a problem. (Business Area Manager)

This Business Area Manager has 12 ongoing projects he oversees. Furthermore, other HQ staff are busy placing new bids, developing subcontractor partnerships, as well as continuous admin work which is why the system structures are incredibly important to scale good project outcomes. In one way, systems-based controls stem from the temporal scarcity of HQ staff and, ironically, it is the temporal scarcity on-site that hinders project staff from filling in the systems with the necessary information.

To solve the current information gap, business area managers are constantly having informal project meetings with on-site staff nagging them for formal project updates: “Now you need to explain to me what's happening”. “I haven't had time [to put it in the folder], I haven't done it”. “Ok, then you have an hour to put it in” (Business Area Manager). Another ongoing measure is for the Systems Manager to monitor project upload activities within SharePoint. She uses her informal knowledge of how the project is progressing and compares it with the digital records in the system – disapproving the project team if the folders are not up to date: “It's on SharePoint, I can see when they've logged in. I just check, has anyone been in there the last month? (...) I know they've started with purchasing, let's say. And nothing has happened in the purchasing tab. Then I don't approve it for that month”. The SharePoint folder structure, despite its promise of visibility, cannot substitute for direct, embodied knowledge of what's actually happening on site. The lag between work completion and documentation upload means that by the time folder audits reveal missing documents, problems have potentially developed beyond easy correction. The Systems Manager noted that during her site visits, she can quickly get a feeling about how things are going; the tacit assessment doesn't emerge from folder contents – it comes from physical presence, observation, and informal conversation.

The spatial and organizational divide between production and HQ amplifies these documentation dynamics. Site personnel operate in a world of material realities, physical coordination, and immediate problem-solving; HQ operates in a world of spreadsheets, folder structures, and formalized reporting. The SharePoint system was meant to bridge this gap, making site realities visible to office-based managers. Instead, it has in some ways deepened the divide, creating a compliance burden that site personnel experience as disconnected from their actual work priorities.

On-Site: Activity coordination, not systems, is fundamental to align the pace of subcontractors and site members

To fully appreciate why these documentation lags appear, we will turn to the lived reality of production: what actually happens on site, the pace, interruptions, dependencies, and improvisations that the office rarely sees.

The Controller gave a nice illustration of the on-site production: “It’s like small companies within the company. They have their project manager, supervisor, and personnel engineer. They are in contact with purchasing and with me”. Each day is packed with highly interdependent scheduled tasks. During the site visit, the Site Manager described how a regular day looks like: mornings typically kick off at 7:00 AM, followed by a morning coordination meeting “At eight o’clock every morning. I think that’s the most important meeting. A morning meeting lasting about ten to fifteen minutes”, and then work: constant planning, adjustment, and communication proceeds.

The setup of a short stand-up meeting one hour after the day’s start is intentional; it allows workers to surface issues that emerged during this first hour so that the later conversation is grounded in the reality of today. As he explained: “Because then you’ve already started, and when you get to work, you realize, ‘Shit, these things haven’t arrived, these things don’t fit, damn it, the power isn’t working’”, which gives him and his team “(...) a picture of what [the] day is going to look like”. This indicates a constant negotiation of priorities driven by real-time conditions. In the Site Manager’s words: “I have no crystal ball”, yet years of experience and solutions like that allow him to anticipate risks before they become costly delays and to adjust on the fly. In this case we see that the intentional scheduling of the morning meeting, grounded in many years of experience, centers focus to the present and allows for more effective project coordination.

This meeting also serves another key role: facilitating intercommunication. With many different subcontracting companies present on site, friction can arise as people may find themselves “in the way of each other” (Site Manager). Creating a space where participants can put a face and a name to one another reduces this tension and enables more constructive interaction. This is supported by the Site Manager’s ongoing effort to build these relationships during meetings: “‘Talk to each other. So that you don’t get on each other’s nerves, so you know what you need.’ And yes, then suddenly when the meeting ends, you see how they look at each other (...) And damn, it works so well!”. This alignment is not only social but practical. Because of safety constraints and the disruptive nature of some tasks, temporal coordination helps in sequencing activities, for instance around noisy or hazardous work such as water-blasting concrete: “Then no one can be around (...) everyone else must be in other places.” (Site Manager). In this way, rather than relying on weekly meetings or reports, the site crew manages work through continuous informal feedback cycles – resolving most issues face-to-face, by phone, or through messages during the day.

While the daily stand-up meeting stabilizes the internal rhythm of work, a second type of coordination ties the project team to the client: the weekly ‘construction meetings’. As explained: “With the client, I would say the construction meetings are really good. They’re once a week. We go through everything from work environment issues in the project to finances to safety rounds to everything” (Project Manager 3). These meetings also become temporal anchors in an otherwise fluid and reactive schedule. As another project manager reflected:

I would say these are the milestones you're always aiming for: you know that on Thursday we have a construction meeting, this needs to be raised there, this needs to be done before. You have a tight schedule, you have meetings, you maybe have other site visits or a warranty issue to deal with. It really becomes a puzzle to make everything fit. (Project Manager 3)

This forces the team to proactively plan backwards and squeeze preparations into a tighter window.

The Use of Systems On-Site: Person over system prevails when precision is needed to avoid costly mistakes

Across the workday, coordination continues through close, real-time contact between the Site Manager, subcontractors, the client – but perhaps most crucially: the core team around the Site Manager. As one project manager described his own role:

I act as a link between the [Site Manager] in the office and the actual production out in the field. So there's a lot of phone calls and emails between [site manager] and me, and then we usually solve the problems that way. (Project Manager 3)

Together, they not only steer the ship by coordinating subcontractors in their work, but they also complement each other – the Site Manager being experienced working with people and Project Manager 3 is more tech-savvy: “He's old school. He uses paper and pen, writes things down and then just goes: ‘Here are my thoughts.’, ‘Okay, well then I'll put it into the computer so it gets sorted’” (Project Manager 3). As a close-knit team, they spend considerable time making sure deliveries, equipment rentals, checks, and negotiations with suppliers are handled in time. The Site Manager explained it is not uncommon that suppliers ‘surprise’ you last minute by cancelling or delaying deliveries, and since supplier delays are one of the main causes of schedule slippage, he is clear with his crew on this front:

I demand that you call them. Check when these damn things are coming. Otherwise, I have four guys standing here on Monday, July 1, ready to start installation. And then nothing is here (deliveries).

This permeates the Site Manager's way of working: “I have to call and check all the time. I'm like an old mother”. In fact, this ‘old mother’ style could be used as a metaphor for a *tacit temporal know-how*: an understanding that a delay today might snowball if not addressed or to know when a shortcut can be taken to catch up on lost time. The Site Manager explains: every discrepancy in timing has immediate financial impact, noting that “everything costs money” and even small oversights like forgetting rented equipment accumulate quickly into substantial losses so “it costs an enormous amount of money to correct mistakes”. Such know-how of human judgment and direct communication is beyond what any formal schedule or digital tool can provide and builds on a common personal preference in the construction industry (and occupational norm) for ‘person-over-system’. Despite that, many digital systems are used and needed in a project. According to him:

Everything should be entered [into the system]. Everything we do should be there. There should be self-checks, schedules, work preparations, risk assessments, and so on. We should enter this information continuously into our shared system, Next. (...) There are no daily reports, no status updates, so if they [HQ] want to see something, they have to log in and look for it.

While some of these tools may help serve management control, the Site Manager expresses frustration in the overreliance of these tools, seeing them more in the context of supervision rather than collaboration and communication: “they hear that things are going badly and we’re falling behind (...): ‘but what’s the problem? Why can’t you catch up? (...) That’s when you feel: ‘Come here and take a look!’”

Furthermore, as one of the interviewees pointed to, not everyone contributes equally to keeping digital systems updated:

You can put a 55-year-old in front of a computer, and it just doesn’t go that fast. But out in the field that person knows exactly everything, you know what I mean? So it’s really tough for many. And many times the burden falls on the one who’s good with computers. (...) Then it’s almost like you’re taking on half a role extra. (Project Manager 1)

The dichotomy between the digital timeline and the lived timeline becomes visible here: the experienced supervisor may know exactly what is happening in real time on site, but that knowledge does not automatically flow into the system. While this on the grand scale can be solved by having complementary teams – “spot on. (...) Then it works damn well” (Project Manager 1) – it can become problematic in cases where this complementarity is missing.

Workplace Technologies: Communication structures that follows pace, but risk neglect under time scarcity

“No one can just say things verbally; you need it so you can always point back and say, ‘Look at this email, here you wrote that we agreed on this.’” (Project Manager 1). For this reason, he continues “email is great”, often the simplest way to ensure everyone gets the message. However, the risk is that this creates a documentation gap unless those emails are actively transferred into the project archive. Another communication method that has emerged on several projects is the use of WhatsApp groups to provide fast and visual communication, especially when working with foreign subcontractors. As Project Manager 1 explained:

Pretty much the whole world uses WhatsApp. It’s pretty smart – I’ve made a group there, and whatever they do, they upload a picture. If they’ve plastered a bathroom or done this or that... they take a photo and say: ‘Finished in apartment 13C.’ Then you can just open the app on your computer and download the whole thing. And then I can send the picture by email afterwards.

In the Swedish construction industry, where it is common that you “import labor (carpenter, bricklayer, concrete-, or skilled workers)” (Business Area Manager) from abroad, tools like WhatsApp help bridge language barriers. However, digital tools alone are not enough. As the Business Area Manager emphasized, when subcontractors do not speak Swedish, “more responsibility is put on the on-site manager”. Direct one-to-one communication, often supported by simple visuals such as spray-painted markings indicating what should be kept or removed (see observation from site visit in [Appendix](#)), helps prevent misunderstandings that interviewees noted remain common even when using translation apps. Site Managers therefore operate not only as coordinators of work but also as bridges across languages and cultures, ensuring that daily tasks proceed as intended. In these moments, the industry’s reliance on person-over-system is less a cultural preference than a practical necessity: real-time coordination requires human interpretation and relational trust that formal systems cannot replace.

Against this backdrop, WhatsApp also becomes a parallel documentation stream: quick enough to match the pace of production but still requiring someone to manually transfer the evidence into formal systems. However, even when knowledge is documented, retrieving it is not straightforward unless one knows where to look. Often the quickest path to knowledge is therefore to make a call. The Site Manager explained how he introduced a sign-off sheet on his sites so that: “If I’m an electrician or carpenter (...) when I’m done I’ll sign. (...) When I leave the room, anyone can see, weeks, months later: ‘who was here week 12?’ and call if needed.”

This person-centric knowledge network again illustrates how informal, person-driven communication routines supplement – and even compensate for – the slower rhythms of official digital tools, a trade-off that becomes particularly visible in the Handover phase when complete documentation is required.

Handover and post project evaluation

“You’ve put so much time and energy into it. And then suddenly it’s finished”
(Project Manager 3)

Handover: Formal requirements create time urgency as the deadline approaches

The Handover phase is the climax of the project timeline – the point at which all project activities converge toward formal completion. This phase brings a distinctive tension: the push of escalating time pressure meets the pull of formal procedures that must be completed before handover can occur. There is intense urgency: the deadline to finish construction work:

Time is money. (...) Being delayed would cost a huge amount in penalties, but also, the faster you finish, the cheaper it becomes. If you look at our APO cost – what we call site overheads – when we’re running at full speed with everyone on salaried positions, site huts, rentals, all of that, we’re up at almost a million per month.
(Construction Engineer)

Every day the project drags past its finish date, more penalties and overhead costs accrue, and every day finished before the deadline saves time, resources, and strengthens the client relationship. As the Construction Engineer expanded on:

I think that time is an important parameter (...). The client wants it finished so that you stop incurring production costs and start generating income. (...) [E]veryone wants it finished as quickly as possible. So you always have very tight time plans.

Besides the fact that delays or qualitative misses can trigger APO costs, penalties (vite), and hurt customer relationships, they can also trigger the loss of part of the contracted amount, as explained by Project Manager 1: “You [the client] usually withhold 5% of the contract amount until the final inspection is done. And this is regulated legally (...) that’s a basic rule.”

The handover phase is also when formal requirements peak:

The finalization phase is mainly about handing over the documentation and making sure the financials are correct – that everything is agreed upon with the client. The start and the end are the toughest periods. That’s also when we have to step up and maybe work a little later and a little longer. Those parts simply require more time and energy. (Project Manager 1)

This shows the temporal pressure and formal demands, the time urgency and scarcity, converge most intensely at the beginning and end of the project, with handover deadline experienced as one of the most demanding periods: “it’s always tight with time and money, everything just has to be squeezed in and finished” (Procurement Manager) and “we have to have quality documentation for what we do [in time]” (Project Manager 1). While there are established procedures for how to finish a project formally, the lived experience for the team can often become chaotic and improvisational (flexible), as they try to tie up loose ends in time. According to the interviewee, it is not uncommon that:

(...) there is documentation missing. And then they [the customer] withhold the money I mentioned earlier. We then have to spend several hours on work that we have essentially already paid ourselves for. It becomes like paying yourself and eating up that 5% in the end (...) just to finish the project. (Project Management 1)

This underscores how time scarcity at handover can translate directly into financial loss. All the as-built drawings, quality attestations, safety inspections, and client sign-off forms that may have lagged now come due. If earlier phases saw documentation gaps, these must now be reconciled, as clients or authorities won’t fully sign off until every required document – say a fire safety certificate or an electrical test report – is submitted. Ideally, if the project management system had been used diligently throughout the project, all necessary documents would already be in the right folders, ready to hand over.

Proper documentation also matters years later: “In construction, warranty defects usually appear within the first two years,” explained the Operational Owner, “the issues that come up during the five-year inspection are usually minor”. If such warranties kick in, folders will have to be revisited. Project manager 1 notes “we need to make sure that everything is updated so that the next person just ‘okay, this is what applies’. His job becomes a hundred times easier”. In reality, as we heard, much is scattered: some in emails, some in personal drives, and some simply never produced. Project Manager 3 explains: “it’s really the folder structure that will become the handover, where we have all the documents. So it’s damn good if you keep track of them from start to finish and work in it absolutely constantly.” He continued, giving examples of how it could look, how proactively documenting would reduce workload later, and how, in the end, it is the person who determines how well the system is used:

If you spend time and effort on things that will be needed in the end phase, starting them early on in the production process, for example, self-checks, putting together everything that needs to be handed over to the client: USB, folders with documentation (...), then you don’t need to sit there in the end and think ‘Oh shit, now I have to put together three binders with a hundred pages each’

At the same time, not everyone experiences this administrative work as something that *can* realistically be done continuously. Another project manager offered a contrasting view on the workload: “[admin] takes too much time. Then we would need another employee on the project that does it” (Project Manager 2). Here, the ambition to leave a clean digital trace for the next project coexists with strong time pressure to move on, highlighting how the administrative demands of handover can exceed available capacity, reinforcing the sense of temporal scarcity.

Is this temporal scarcity caused by a non-linear way of working? Project Manager 3 continued, telling a personal story about how he learned from experience, having once procrastinated the administrative work himself, which eventually put him under significant pressure:

When I was new as a project manager there was a site manager (...) who told me: ‘Start now and you’ll will have a nice journey ahead of you’. I had never done that before, so I was like: ‘Hell no, not yet, it’s super long until it is due’ (...) but then I was sitting there eventually (...): ‘Oh, I should have listened to him’. I learnt the hard way that if I don’t want to sit until 8-9pm in the evening, then I have to [start early]. (Project Manager 3)

This reflects a shift toward proactive time management based on learning from experience: “I’ve stepped on mines and made mistakes: it cost money but then I’ve learnt something and I bring that with me” (Project Manager 3). What is missing, however, seems to be the institutionalization of these learnings – about time, risk, and workload – so that insights from sourdoughs translate into actual processes and procedures. In their absence, informal learning prevails: lessons reside in people’s heads or emerge through storytelling and mentorship, rather than through written reports.

Post Project Evaluation: Pace variations cause imbalance and incomplete feedback cycles

After the formal handover, the project enters a post-project evaluation phase. From a temporal lens, this is where knowledge transfer is meant to connect past, present, and future – ensuring that past experiences inform future projects. In theory, ideally, once a project is done the organization conducts *after-action reviews*, extracts lessons (both positive and negative) and share those among employees. In practice, there seems to be an agreement that the “follow-up procedures are insufficient” (Operational Owner). In some cases, it might be “the tempo that is causing it. You must continue with the next thing” (Project Coordinator). In other cases, post-project work is often overshadowed by what just happened. If the project was successful, the team quickly disbands to new projects, with little time to reflect. If the project was a ‘sourdough’, the aftermath involves significant management intervention to mitigate losses and prevent recurrence. Furthermore, as noted earlier, learning is heavily based on experience, and feedback is heavily reliant on human bridges, so employees who may themselves retire or leave introduces a high risk of ‘knowledge erosion’ over time. One recent and painful example of this is a ‘sourdough’ where the management was unable to get feedback:

The one who was responsible for it [the project] is on sick leave, so we haven’t been able to have a dialogue, but something was not done in time, (...) it was ‘vite’ (delay penalty). (...) We had no idea, and then it’s something we’ve missed in the Project Barometer (System Manager)

The instituted feedback loop was insufficient, but worse, now the firm needs to find ways to recover information that might not have been documented.

As important as it is to examine what has gone wrong, it is equally important to recognize what has gone right. Yet the evaluation phase – already compressed by the quick pace of moving on to the next project – rarely leaves space for acknowledging good work. In a human-centric industry, this omission matters. As an interviewee reflected, while the company aspires to reduce dependence on individuals for the sake of corporate robustness, in practice “it is a people business” (Business Area Manager):

I’ve noticed that there has been some staff turnover (...) The less dependent you are on individual people, the better you are, in principle, to build company value. But at the same time... (...) Everything is about people (...). So yes, you make sure you have this (...) structured, well-documented, systematic operation – but you want to keep the stars who actually do the work. (Project Coordinator)

This tension between building systems and retaining the “stars” becomes particularly visible at project close-out when feelings of completion can pull individuals away rather than into the next organizational cycle. One interviewee described pride and relief of completing a project as causes to personnel turnover: “That feeling of, ‘Oh shit, I’ve done a good project.’ You feel ready [to move on], maybe.” (Project Manager 3). Lack of recognition contributes to this feeling. Building on the earlier example where an external estimator’s errors caused the team to start the project deep in the red, the Site Manager recalled:

I did everything [to save money]: I shoveled snow to save money, (...) instead of bringing in a tractor, I dragged things myself for the ventilation contractor. And in the end, we managed to turn a profit of 2 million. (...) That project is close to my heart. It turned out so damn good. When we had the inspection of the facade, we got zero defects. Zero remarks. (...) And then there was this emptiness in the sense that – I was damn proud. I was happy. And then I said to the head office, ‘Aren’t you going to take a picture or something?’

There was no interest at that time. When the project finally came to an end, the Site Manager was met with no celebration, except for the small opening ceremony of the school that he built: “Fun, really.... I dressed up. The whole school was there. The Red Cross served hot dogs and festis (type of juice for children)” (Site Manager). However, now, three years later, he had received a call from HQ, telling him that they *finally* planned on taking pictures for marketing. The Site Manager explained: “So it’s been three years since I built that house. Now? Now I get a bit sad. What the hell, [not] when it was brand new and nice?”. It’s not only about the pictures. Management has also not institutionalized a critical feedback cycle they call ‘erfarenhetsåterföring’ (experience feedback), he continues:

We talk about it all the time – there’s supposed to be experience feedback. I haven’t been to a single one. (...) I’ve done a school, a police station, a veterinary clinic, and now another swimming facility (...) So this is my fifth project. No experience feedback.

Handover marks both closure and detachment: temporally, the project must end, but for those who carried it, the shift can feel abrupt and emotionally disorienting – from running at high pace to a sudden stop. What emerges is not only the emotional weight of closure but also an organizational blind spot: the post-project phase lacks structured opportunities to acknowledge achievement and digest lessons before re-entering the cycle. This creates an ambivalent feeling at the moment of completion:

It’s a journey. You follow your milestones and you complete this and that. Then you have the final inspection, the handover. But you always end up standing there at the end of the project thinking, ‘shit, now we’re done.’ It’s a bit sad. Then you’re supposed to leave the client and move on to the next project. (...) You’ve put so much time and energy into it. And then suddenly it’s finished. (Project Manager 3).

5. Discussion

This section is dedicated to summarizing and analyzing the main themes in our empirical material through the temporal lens of Ballard and Seibold’s (2003) Meso-Level Model of

Organizational Temporality, in order to contribute to ERP and PBO literatures on system (non)use for management control. Throughout our case study, three interrelated themes stand out: First, we find that temporal *(mis)alignment* between digital systems and project work constitutes the primary determinant of system *(non)use*. Second, we develop the concept *temporal misfit* – a disconnect where management views wrong personnel as temporal misfits, while several employees experience the systems themselves as the temporal misfit unable to match project work's unpredictable pace. Third, we observe a pattern of *temporal repair* – the compensatory communication effort required when workplace technologies fail: project members relied on activity coordination and feedback cycles, both of which demanded substantially more dialogue, face-to-face interaction, and time investment than the digital systems they replaced. However, we find that *when* these controls are deployed matters just as much as what controls are used: activating communicative structures only after problems surfaced rendered feedback cycles and coordination reactive rather than proactive.

System Time vs Project Time: Temporal (mis)alignment as the primary factor for system (non)use

M-Roc, as a construction PBO, operates in two parallel worlds: an office-based one (finance, procurement, cost estimation, management oversight) and an on-site one (site management and subcontractors), which constantly need to sync to stay aligned. In line with earlier ERP studies on multinational organizations (MNOs) (Quattrone & Hopper, 2005; Dechow & Mouritsen, 2005; Beaubien, 2013), our case study finds that digital control practices in this PBO displayed a clear dichotomy between a 'centre' (HQ) and its 'peripheries' (project sites). Apart from being used to organize work, accounting systems were meant to help bridge the realities on-site with HQ. From our earliest discussions with the CEO to interviews across the organization, we repeatedly heard the need for stronger oversights to avoid projects "going down the drain" – turning them into sourdoughs (failing projects). These accounts underscored the urgency of having systems capable of capturing emerging problems through 'early signals' before projects turn sour. However, as evident from our empirics and in-line with earlier ERP research, the systems alone proved ineffective for HQ in compressing the spatial distance between themselves and the production sites. Our findings expand the view of why these system discrepancies arise. We find that system (non)use is primarily due to temporal (mis)alignment: the temporal structures of the accounting systems and other control systems often failed to match the temporal enactments and construals⁸ that guided project work at M-Roc.

In project environments, work was enacted with a high flexibility and rapid pace to deal with interruptions while attempting to deliver on time, especially during critical execution phases. Schedules on paper frequently had to be rearranged on the fly in response to unforeseen site conditions, subcontractor delays, or design changes – conditions that made rigid system cycles difficult to follow and contributed to the misalignment between system representations and project reality. The accounting systems were configured with a more linear temporal structure, assuming tasks would progress in the sequence of the initial time plan and billing plan, supplemented by data reported at regular intervals. This logic materialized in several scheduled checkpoints⁹ in which HQ depended on timely on-site input: Project Barometer meetings, where the project team presented (and defended) its project, were held at fixed monthly

⁸ Ballard and Seibold (2003) define temporal enactments as how members perform time – how they schedule activities, the pace at which they work, and their flexibility in adjusting plans – and temporal construals as how members interpret time, such as whether they experience it as scarce or abundant, urgent or deferrable.

⁹ In Ballard and Seibold's (2003) model reporting cycles would be defined as scheduled; planned intervals that structure how organizations exchange and interpret information.

intervals regardless of the project's own rhythm; invoices had to be negotiated with the client, issued to subcontractors, and submitted in Medius by month-end to document percentage-of-completion (POC) and recognize revenue; and SharePoint audits tracked whether documents had been uploaded according to the prescribed structure. Beyond the checkpoints, systems also embedded and reinforced a linear logic: Bidcon calculated costs stepwise during tendering and Next represented work as sequential Gantt charts with predefined start and end dates. At face value, then, projects appear linear, scheduled, and decomposable into predictable sequences, but the lived reality of project work unfolds in a non-linear, interruption-driven manner that demands high flexibility and low separation by project employees.

It should be noted that systems were not always misaligned with project work. For instance, cost estimation and procurement systems allowed these functions to place bids faster and more effectively, thereby alleviating time scarcity. Furthermore, while the Project Barometer did not perfectly capture project realities, it still gave management an initial sense of project progress; the intranet infrastructure was also key for receiving updates on regulation changes and company news; and the invoicing dashboard on the intranet, introduced by the Systems Manager, served as a reminder for employees to structure their billing schedules – a simple visualization that proved useful during often high-pace, time-scarce project work. This demonstrates that systems were used when aligned with the temporal realities of project work, however, this did not encompass all processes and systems to the full extent. To avoid sourdoughs, all systems and processes had to be precise, especially at handover, where complete documentation was required – something rather difficult to manage due to the overwhelming number of systems and time-consuming procedures.

Managers were aware of the tight time constraints and unpredictable nature of projects, however there remained an implicit expectation that standardized documentation and system procedures could harmonize the temporal rhythms of production sites and HQ – turning digital tools into boundary objects that bridged the two worlds (Ancona et al., 2001; Yakura, 2002). Our site visit demonstrated why accounting systems rarely succeeded in becoming bridges between HQ and production. Problems on-site arose not monthly or even weekly, but by the hour. Consistent with Veeken and Wouters' (2002) findings that weekly cost reports were too aggregated, too late, and too detached from ongoing activity to support operational decision-making, we observed that by the time progress or cost data were entered into M-Roc's systems the project had already moved on, rendering the data outdated and of limited use. Two examples (among others) illustrate this temporal mismatch. In one case, delays on site were not updated in the delivery schedule, leading to a mistimed window delivery that arrived too early and disrupted ongoing work. In another instance, an early site inspection revealed an unsound concrete foundation that required full demolition and rebuilding, an issue completely absent from tender documentation. Both incidents show how work on site unfolds in "event time," requiring immediate improvisation, low separation, and high flexibility, rather than adherence to the linear "clock time" assumed by system cycles. As the Cost Estimation Manager noted, the "head office and production site are like two different companies," underscoring the difficulty of using digital systems to bridge the two. Interestingly, on-site visits became idealized as bridging mechanisms, attempts to collapse temporal and spatial distance by bringing managers into the lived rhythm of production. However, even physical presence proved incomplete, as the Construction Engineer noted: "I sit here on-site, on my computer all the time (...) so I don't always know everything that's happening". While spatial distance was collapsed, the systems in this case hindered the collapse of temporal distance. Even though M-Roc had employees who were meant to bridge on-site production with HQ

system logic, project status was always slightly out-of-date or abstracted from project reality (Veeken & Wouters, 2002; Ronzani & Gatzweiler, 2022).

Finally, time scarcity underpinned all activities of project work as interviewees consistently described that they had no time or constantly felt behind on project tasks. This perception of time especially dominated the execution phase. Site managers described a persistent fire-fighting mode, with tight deadlines and constant pressure to avoid delays. Under such conditions, any task not seen as directly contributing to keeping the project moving tended to be de-prioritized. Activities like data entry, documenting small changes, or updating plans in the systems often fell into a “non-urgent” category. In contrast, HQ operated with a more disciplined clock-time orientation based upon the formal accounting structures that needed to be updated, at least, on a monthly basis. In order to deal with scarce time, project staff often used less formal and quick workplace technologies to coordinate activities between subcontractors, client demands, and procurement deliveries such as email, WhatsApp, and verbal communication which undermined the usage of the formal systems that management gained visibility through. One such example where this led to a sourdough is when management had the illusion that everything was inserted into the SharePoint folder structure, later to find out they had received a ‘vite’ from the client due to missing documentation. Unfortunately, management could not retroactively search for this documentation since the project lead took sick leave and this employee’s emails could not be accessed.

Prior studies report similar system failures and attribute them to several mechanisms: power struggles between human actors that, through the system, continually move the locus of control and destabilize management control (Chua, 1995; Quattrone & Hopper, 2005); systems imposing rigid ‘techno-controls’ that lead to workarounds and create blind spots (Lowe, 2001; Dechow & Mouritsen, 2005); old habitual practices prevailing over system use, creating an illusion of control for management (Beaubien, 2013); and, finally, users’ tendency to hack or bend systems to their advantage (Ciborra, 2000a; McDaid et al., 2023). While we see certain elements of system rigidity and old habits as reasons for system nonuse, our case adds nuance to research on “control at a distance” (Quattrone & Hopper, 2005) by revealing that a reliance on systems contributed to diminished control (Quattrone & Hopper, 2005) even when distance was collapsed. This suggests that it was temporal misalignment contributed to system nonuse, where if the “system time” didn’t match “project time” then inconsistencies of these realities began to arise. Solving the issues of system nonuse was top of mind for management throughout our interviews. While no single clear solution had arisen yet, we noticed that the temporal misalignments created divergent beliefs between management and employees for why misalignment occurred, which we conceptualize as temporal misfit in the next section.

Who Is the Temporal Misfit: The system or the user?

When systems failed to deliver expected control, the organization grappled with understanding why. We noticed a subtle dynamic that emerged – one where both management and certain employees construct competing narratives about *who* or *what* is out of sync with time. We introduce the concept of *temporal misfit* to capture this phenomenon. We find that management, in general, viewed non-compliant employees as *temporal misfits*, while employees experienced the systems themselves as the *temporal misfit* unable to match their temporal enactments and construals. Our analysis reveals that both perspectives contain partial truths, yet neither fully captures the mutually constitutive nature of human action and technology (Orlikowski, 1992; Ballard & Seibold, 2003). On one hand, demanding systems produced temporal misfits (delayed inputs and system nonuse) which in turn reinforced

perceptions of the systems as ineffective. On the other hand, it was the *user* who was innately the temporal misfit. People, naturally bad with time, who failed to manage all activities of project work may have caused system nonuse, rather than the systems. For example, we found that employees who actively incorporated system time into their project routines and aligned their work with systems experienced them as easier, more meaningful, and an essential aid to their everyday work.

At M-Roc, management discourse consistently emphasized personnel selection as the primary solution to control problems. The phrase “the right people” appeared repeatedly across interviews with senior management, accompanied by a clear causal narrative: successful projects result from hiring the right people. While management often did not elaborate on exactly the qualities of the right person, they alluded to who these people were in the firm. One such example of the right person is Project Manager 3. In our discussion with this interviewee, he described that he learned early on to be proactive and continuously upload documentation to SharePoint as the project progresses. Furthermore, the interviewee emphasized his own view that if one follows “M-Roc’s way of working” then project processes and outcomes become much better. Employees such as him often adopted a future-time perspective where the administrative burden was reframed as an investment for future projects and less stress at the handover phase. Management has described that they have several core people such as this, but that it is the wrong recruits (the temporal misfits) that are the cause for sourdoughs.

When employees failed to meet documentation expectations, it could be interpreted that management viewed the problem as a deficit in temporal competence rather than a limitation of the control architecture itself. This is highlighted by the Systems Manager and CFO who describe that they have all the right processes, procedures, and systems in place, but that they just can’t get everyone to use them. Conversely, several project employees often framed the systems as the temporal misfit. Instead of enabling their work, system documentation was often seen as an administrative burden that took valuable time away from project work, reflective of a present-time perspective. This present time orientation caused some employees to avoid documentation or shoot it forward until management nagged them to input information into the system. Although employees recognized that the systems are important – due to regulatory requirements, documentation at handover, coordinating with management, and enabling faster procurement and cost estimation – some were overwhelmed by the sheer amount of systems. Since M-Roc is still relatively early in its digitalization push, several systems were still not integrated with each other¹⁰. Hence, employees often felt that systems were too static to keep up with project rhythms and consequently skipped inputting data when time pressure was high. Not only was time consistently mentioned as being scarce, some even claimed that projects were understaffed. Even management recognized that, compared to larger construction firms with clear role descriptions, at M-Roc employees had to step out of their role boundaries which often led to excess workload. But, in contrast with employees, management described that they had the right staff size and explicitly referred to following the system structure as being a way for employees to *save time*.

This clash of perception clearly exemplifies the confusion surrounding who or what is the true temporal misfit within the organization. The mutual framing of the other party as temporally incompetent reveals a deeper pattern: both HQ and site crews felt misunderstood by the other.

¹⁰ In our interview with the Systems Manager, she described that the company was currently working on trying to digitalize several tools such as the Project Barometer (currently a static excel sheet) and connect Bidcon cost estimations with Next. Furthermore, the CEO mentioned that the company was in initial engagements with a digital transformation consultant.

HQ grew increasingly worried about “the numbers” when site crews failed to provide timely input, while the production team felt HQ did not understand the project’s urgent reality. The Controller’s remark, “shit in, shit out,” captured his frustration that his work became pointless without timely invoicing from projects, while the Operational Owner acknowledged that despite having “tons of systems” untimely information still happens. Conversely, the site team felt HQ were too fixed on numbers and that only consistent physical presence would convey actual project progress. As the Site Manager put it: “Come here and take a look!”.

In this section, we highlighted the clear frustration from management over system nonuse but also the concern from employees that systems were too rigid (Dechow & Mouritsen, 2005), time too scarce, and the company understaffed. Our findings suggest that it could be both. From a management control perspective, we find that system-based controls, even with many recent advancements, still involve a “quest for integration” (Dechow & Mouritsen, 2005). And we can echo Dechow & Mouritsen’s (2005) findings that achieving true integration of information and control is as much a social and organizational challenge as a technical one. By framing technology and human action as mutually constitutive (see Orlikowski’s (1992) notion of the *duality of technology*) it becomes clear why the system nonuse issue has been very difficult for the company to solve. System use or nonuse become deeply embedded *structures* within the organization (Orlikowski, 1992). One explanation is that the vast number of systems and their documentation requirements made them a temporal misfit compared to how several employees believed project work should be done, which in turn negatively impacted work group norms and cross functional collaboration. Another explanation is that M-Roc initially made wrong recruits who were innately temporal misfits, unwilling to adopt to the ideal system structure. M-Roc had success recruiting a number of “right” people who could handle the pressure of project work as well as proper and timely system documentation, however these seemed like an exception rather than the norm. This created a dichotomy of perception and confusion regarding how to solve system nonuse. The Operational Owner was almost in disbelief about why there was a recurring pattern of system nonuse, breaking of protocol, and consequently a string of sourdoughs. Our findings imply that, even at a small company, system nonuse becomes structurally embedded due to both the temporal misalignment of the systems as well as inherent temporal misfits, creating difficulties in deciding how management control could best be enacted. These issues seemed to be heightened due to the lack of digital adoption in the construction sector, low technological literacy among certain employees, and an organizational culture that has been rapidly changing in the past three years. Speaking to how deep-rooted these issues are, the CFO mentioned the company needed to embark on a cultural transformation journey to break through these embedded issues: “creating a culture where problems are brought to light”.

Temporal Repair: Activity coordination and feedback cycles when systems break down

We find that at M-Roc, workplace technologies (accounting systems, Teams messaging and meetings, email) were the primary medium for management to control the 15-20 yearly ongoing projects and for employees to coordinate work among each other. Due to the large number of projects compared to relatively few full-time staff at HQ, systems and processes were an essential control mechanism for project oversight. To handle the quick tempo of project work, the HQ relied on workplace technologies to coordinate with production. However, when digital control systems failed to capture project realities, management more actively engaged

with activity coordination¹¹ and feedback cycles¹². This came to life in practice as management had ongoing weekly meetings with office functions such as calculation, procurement, and finance in addition to ad-hoc and scheduled check-ins with project teams. Based on our findings, these were more time and dialogue intensive meetings often between various work groups. When “system time” did not match or could not keep the pace of “project” time, these two communication structures were used to bridge realities between HQ and production. In this sense, they were most often used reactively when systems were not used or in compensation of system rigidities. Exceptions to this included a yearly offsite where the whole company gathered to discuss strategy for the coming year together, three to four information meetings per year, two company-wide lunches per year, leadership meetings once per month, and five board meetings per year. While these proactive meetings helped reflect on past work and coordinate for the future, they happened seldomly – especially between HQ staff and production staff. For this reason, we conceptualize activity coordination and feedback cycles as *temporal repair* mechanisms, meaning they repaired the temporal misalignment caused by primarily the formal systems. Another important finding is when temporal repair was *not used*. Important feedback cycles were often missing to transfer knowledge between projects. These two insights show that in PBOs it is not only important what types of management controls are used but also *when* various controls are used or not used.

An example of when feedback cycles are used reactively is when management members consistently described the need to “nag” employees to insert information into, primarily, the SharePoint map structure. The Business Area Manager mentioned that whenever he looked into the folder, he couldn’t find anything. This resulted in constant phone calls to project managers to check project status and demand that the systems be up to date. In one of our initial meetings with the CEO, he even humorously mentioned that nagging is all he does. These short, continuous feedback cycles align with findings that accounting representations, in this case project documentation or billing status, becomes valuable through communication (Vollmer, 2007; Hall, 2010; Dambrin & Robson, 2011), yet these practices are time consuming and may even perpetuate system nonuse. The use of various workplace technologies such as email, WhatsApp, and phone calls reflected quick informal feedback sessions and coordination activities that at times, such as in dialogue between procurement and production, undermined the need to insert the final decisions into the formal accounting systems. In such cases organizational memory (Quattrone, 2009) was vastly distributed between people, informal and formal systems creating difficulties to find a single source of truth (which ideally would be the SharePoint folders & financial projections). The HandyDay system could be used to create a knowledge bank for where supplier information could be stored for future collaboration opportunities. While supplier rating was used by cost estimation, production (who actually work with the suppliers) did not fill these in, resulting in a temporal repair meeting by the Procurement Manager – a physical meeting to rank suppliers together.

In other instances, activity coordination was used proactively to make sense of accounting representations within the systems. One example of this is the avid strategic dialogue between various work groups during cost estimation transition meetings. During these meetings, management, production, procurement, and cost estimation teams sat together to understand the calculations that have been made and how they should coordinate their activities to create a successful project. These meetings were effective in kicking off projects, showing that when

¹¹ As a reminder, activity coordination is when organizational members align their work and construct shared temporal understanding through ongoing dialogue

¹² Furthermore, feedback cycles are when organizational members retrospectively make sense of what has occurred when systems have failed to provide adequate visibility

temporal repair aligns schedules, pace, and time perspectives proactively it can lead to better collaboration. The uncertainties of project outcomes were complemented well with concrete action planning (Carlsson-Wall, et al., 2017) and dialogue surrounding expectations of how to achieve profits (Jørgensen & Messner, 2010). Despite this, we find that the sheer complexities and unpredictable nature of project work led to diverging beliefs of when and how profits should be made as illustrated by the opposing views on procurement gains, as an example. In this sense, the kickoff transition meeting may not have been enough to coordinate expectations for the whole project. This meeting marked a transition from dependence on HQ to vast degrees of project independence (and a 'I can solve it myself' attitude from production) – which was too weakly reinforced with the Project Barometer, SharePoint audits, and ad-hoc updates resulting in a failure to capture early signals before projects turned sour.

Boverkett (2018) highlights that knowledge dissemination fails in the construction industry. In our case study shows that this happens when feedback cycles are untimely or inexistent. While continuous informal feedback (Pitkänen & Lukka, 2011) was common throughout the project lifecycle, formal 'erfarenhetsåterföringar' (experience feedback) meetings were not institutionalized by management. The Site Manager mentioned that despite so much talk about having these meetings, he had never had one for a single of his five completed projects. This is likely because activity coordination and feedback cycles are bound to the same temporal pressures that perpetuate system nonuse. HQ staff faces scarce time and highly flexible schedules chasing new deal flow and trying to save sourdough projects. Hence, feedback cycles tended to happen reactively while successful projects were not properly brought to light. This missing link had two concrete consequences for the organization. First, the cost estimation team received no feedback from production regarding whether the calculation was accurate or not. These two functions have reciprocal interdependence (Ballard & Seibold, 2003) with each other over where mutual adjustments over time are needed to create consistently good project outcomes. As the Cost Estimation Manager mentioned, the quick pace of moving to the next project currently left no time for these meetings. Second, the production team often didn't receive enough formal recognition after they pour their hearts out over a project with pride. This emphasizes that construction is truly a human business, highly dependent on how personnel feel in their role. Unsurprisingly, project end creates an emotional hole which contributes to high employee turnover in the industry where production staff may jump around to different companies regularly. These examples illustrate the consequences when temporal repair mechanisms remain inactive precisely when they matter most.

These practices of temporal repair extend existing literature on management control in project organizations by showing that control is not simply a choice between system-mediated oversight and personal presence, but rather an ongoing oscillation between the two as temporal discrepancies accumulate and get periodically repaired. Thomsen et al. (2025) and Ronzani and Gatzweiler (2022) documented how formal controls can obscure project realities; our findings show that organizational members recognize this obscuring and actively work to compensate for it (in line with Veeken & Wouters, 2002). As mentioned in earlier studies, communication becomes essential when accounting representations fail to match reality (Dambrin & Robson, 2011; Jørgensen & Messner, 2010; Hall, 2010; Busco & Quattrone, 2015) Yet temporal repair is not costless. It requires significant managerial time and attention, creates dependencies on specific individuals who hold tacit knowledge, and often leaves no lasting organizational memory since the insights gained through dialogue rarely get codified back into systems. The challenge for project-based organizations, then, is not simply to balance formal and informal controls but to sequence them strategically across project phases, ensuring that informal coordination anticipates and enables formal documentation rather than merely repairing

failures as they arise. Integrating both how and when temporal repair unfolds reveals three takeaways: First, temporal repair through activity coordination and feedback cycles is essential for compensating for system failures and enabling project control. Second, the effectiveness of these practices hinges on their temporal positioning. Third, the systematic absence of temporal repair at project closure represents a critical organizational blind spot that may be perpetuating knowledge loss, turnover, and recurring mistakes.

6. Contributions and concluding remarks

Using Ballard and Seibold's (2003) Meso-Level Model of Organizational Temporality as its main theoretical framework, this paper has aimed to answer the following research question:

How does temporal (mis)alignment between digital accounting systems and project work shape system (non)use and the management control practices that emerge in response?

First, we contribute to the ERP and management control literature by extending explanations for system (non)use. We argue that temporal (mis)alignment between project time and system time constitutes a key explanation for system (non)use. Our findings show that when systems were misaligned with organizational members' performance and perception of time, this resulted in system non-use and led them to rely instead on informal feedback cycles and activity coordination. Persistent patterns of nonuse expanded from individuals to work groups, creating structural misalignments in certain processes and procedures. As a result, the effectiveness of management control through systems was diminished. This structural element also produced conflicting perceptions between management and employees regarding the source of the problem, culminating in uncertainty over who – or what – constituted the temporal misfit. While management believed that they had all the systems and structures in place and that employees should actively use them to save time, several employees regarded the systems as an administrative burden that hindered their project work. Since employee action served as the primary input into various accounting systems, system nonuse created inaccurate representations of project reality which influenced how management control could be enacted. Second, we contribute to research on control in project-based organizations. Prior studies show that managers rely on dialogue and informal control mechanisms to interpret and act on accounting information in addition to formal control and systems-based controls. These studies often problematize project relevance and treat informal controls as compensatory mechanisms when formal ones fail. Our study reiterates these findings and extends this by conceptualizing this compensation as temporal repair. In doing so, we find that the timing of temporal repair – activity coordination and feedback cycles – is an important factor determining the effectiveness of control in project-based organizations. Temporal repair bridged the reality between HQ and production so that management could understand project development in real time when system representations failed. While this was often used reactively, which perpetuated system nonuse, we find that when used proactively, activity coordination and feedback cycles contributed to better alignment between HQ and production.

A single-case design limits statistical generalization and our ability to provide a universal explanation for system nonuse, particularly as construction PBOs have distinctive characteristics such as subcontracting, site constraints, and a unique stakeholder landscape that may restrict transferability. We mitigate this by aiming for analytical rather than statistical generalization: developing temporality-based concepts that are not tied to the specifics of one firm and drawing on interviews across all functions and project phases to capture multiple

organizational perspectives, interdependencies, and communication practices. These detailed accounts provide a basis for context-sensitive application beyond our case. Furthermore, our data access was substantial but a snapshot rather than continuous, as we did not follow full project lifecycles. Accordingly, we focused on current practices while encouraging interviewees to reflect on how these had evolved and how past experiences shaped present conditions. Our interpretations of our findings are shaped by our interactions with participants and our analytical choices. We mitigated this bias through triangulation across interviews, documents, and observations, but alternative interpretations remain possible.

For future research, more empirical work is needed to understand the intricacies of temporality in management control. Our study highlights the value of bringing a temporal lens to accounting systems research, particularly when evaluating digital control systems. At M-Roc, persistent difficulties in achieving project oversight led us to develop the concepts of temporal misalignment, temporal misfits, and temporal repair. Future studies could contrast our findings with other contexts; across industries, organizational forms, or project types to clarify how temporal dynamics may differ. Furthermore, our study largely problematizes the use of accounting systems and controls, focusing primarily on misalignment and nonuse. It would be interesting to understand how highly valuable companies utilize system-based controls where systems are likely more aligned with users. In the context of technological advancements, future studies could expand on how systems shape organizational work. This is especially relevant as companies are implementing AI workflows to larger extents – which can be compared to the ERP boom that happened in the 1990s. AI-driven tools can increasingly understand organizational context: report anomalies or rhythm conflicts proactively. Researchers could examine whether such features enhance system usefulness, reduce data distortions caused by time pressure, change users' engagement with digital control systems, and if AI implementations have consequences for management control. Finally, our findings suggest that temporal fit matters for recruitment, onboarding, and training. Future research could further explore the importance of temporal fit as a key cultural control mechanism and specifically study whether temporal fit makes management control techniques feel coercive or enabling.

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Appendix

Summary of interviews conducted across organizational roles

To capture diverse perspectives across the organization, we conducted interviews with employees in a range of roles; the table below presents a summary of these interviews.

Table 1: Overview of the conducted interviews

Role	Date	Duration of Interview	Comments
CEO	–	–	Two unrecorded conversations
Systems Manager	2025-10-06	1:13:18	–
Purchasing	2025-10-06	0:58:53	–
Project Manager 1	2025-10-06	0:52:34	
Business Area Manager	2025-10-06	0:53:53	–
Project Manager 2	2025-10-06	0:57:50	
CFO	2025-10-07	0:55:59	–
Head of Energy	2025-10-07	1:04:59	–
Project Coordinator	2025-10-07	1:31:33	–
Controller	2025-10-07	1:15:00	–
Owner / Board Member	2025-10-13	1:11:58	Operational
Owner / Board Member	2025-10-13	1:19:03	Strategic
Project Manager 3	2025-10-13	1:08:55	–
Construction Engineer	2025-10-14	0:51:25	Online due to illness
Cost Estimator	2025-10-14	1:02:33	–
Site Manager	2025-11-11	2:45:00	Conducted during site visit

Generic interview guide

Below is an excerpt from our generic interview guide. We asked employees open questions about their work processes, communication patterns, and use of digital systems in daily work, including when and how they used these systems, and what they found useful or challenging.

Section	Key Questions / Topics
1. Introduction & Formalities	- Purpose of study: management control, system use, information flows, work rhythms. - Voluntary participation; withdrawal at any time. - Confidentiality and anonymization. - No right or wrong answers; focus on experiences. - Clarifications before starting.
2. Background	- How long have you worked in construction? Has the sector changed in your view? - How long have you been at M-Roc? What has changed or stayed the same (systems, culture, responsibilities)? - Can you briefly describe your role? - Are you involved in all projects or certain types more than others?
3A. Work Process	- How does the work process unfold from start to finish? Who is involved? - Which steps take the most time? - Which functions do you collaborate with most (e.g., project managers, site managers, finance, suppliers)? - Is the process smooth? If not, why?
3B. Communication & Information Sharing	- Who do you communicate with most in your role? - How does communication typically work in your daily tasks? - Is communication smooth or does it involve back-and-forth (misunderstandings, delays, reminders)? - Do you ever lack information needed to do your job? - Do you get answers quickly? Do others wait for answers from your department? - Can you give an example of communication working well—and one where it did not?
3C. IT Systems & Tools	- Which IT systems do you use? - Which are most important, and how often do you use them? - Which systems do you update with information shared across teams? - Beyond IT systems, do you use any physical tools (boards, checklists, printed protocols)? - When does the system feel essential, and when does it feel unnecessary? - If you could change something, what would it be?
3D. Timing, Deadlines & Workload	- Are there specific time points (monthly reports, weekly meetings, deadlines) that strongly shape your work? - How do deadlines affect your day-to-day tasks? - Do you usually keep up, or does it get stressful? Why? - Are there moments when unexpected work or information suddenly arrives? How do you handle that?

A selection of on-site pictures

During our interviews at HQ (conducted 06–14/10–2025), we made field observations. A few selected examples are shown below.

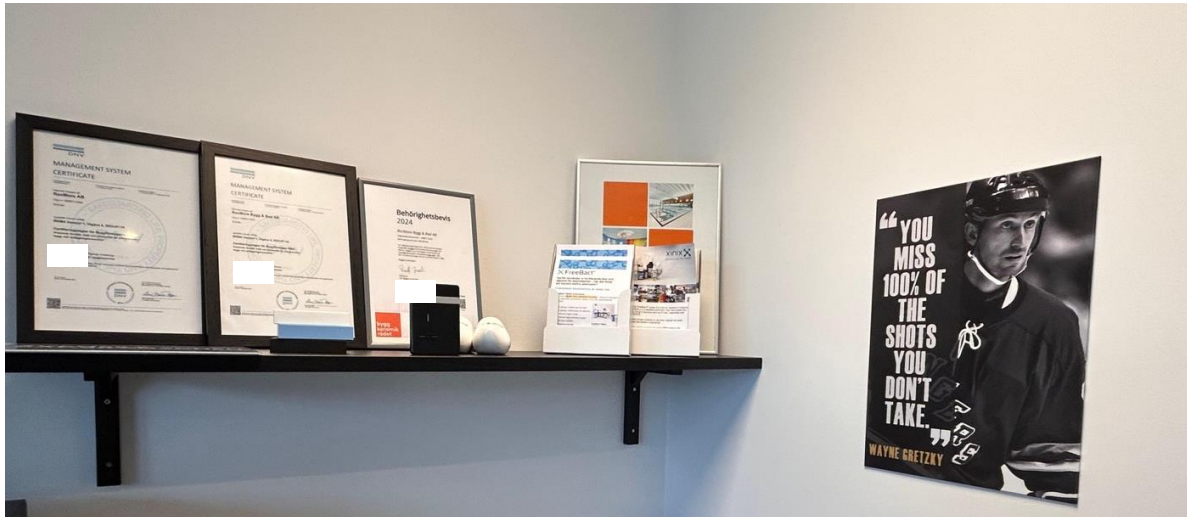


Image 1: Various certifications required to operate within construction are visibly displayed, positioned alongside a cultural message encouraging employees to take risks in pursuit of higher achievement.



Image 2: Art reading “I’M HERE TO WIN.” conveys a competitive and performance-oriented ethos

Image 3: A book titled “Shit happens get over it” conveys a pragmatic attitude toward setbacks

Similarly, pictures were taken during the site visit (conducted 11/11-2025) as seen below.

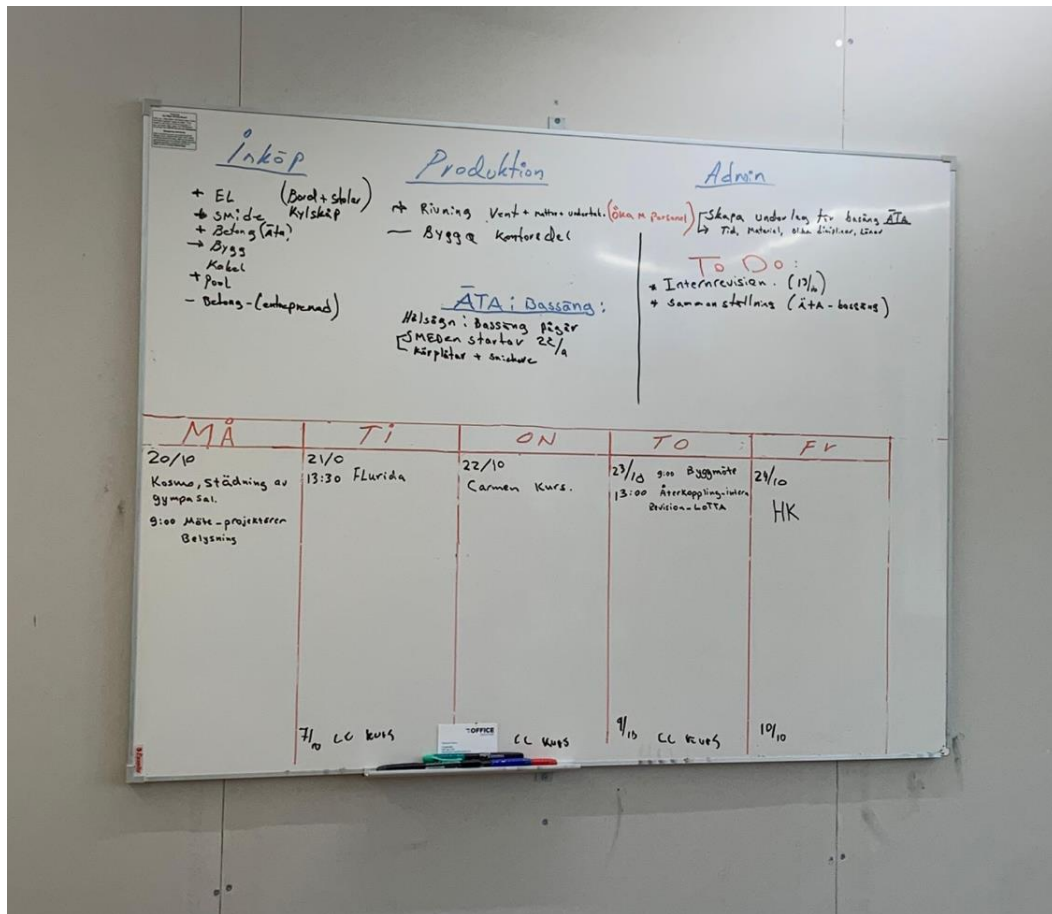


Image 4: A whiteboard on-site with manually written notes for the week and some notes for each function: purchase, production, admin, ATA (contractual additions) coupled with a general to-do list.



Image 5: Visual signs indicated among more, what should be kept/removed

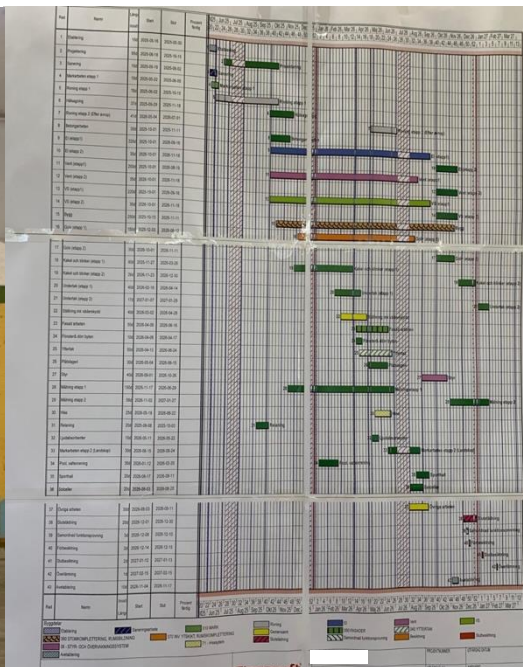


Image 6: A Gantt-chart showing the planned sequencing of activities over the production phase