“PROCESSUAL FORMALISATION IN VENTURE GROWTH”

Research Paper

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“Abstract”

This study examines how startups formalise as they scale without losing adaptability. Existing accounts depict formalisation as a linear progression from informality to professionalism. An integrative review of 63 studies across organisation theory, entrepreneurship, and process research reveals a more cyclical and provisional dynamic. Four findings emerge: formalisation unfolds in loops rather than stages; artefacts matter less in design than in use; temporal rhythms act as a key design lever; and institutional and sociomaterial pressures shape adoption and endurance. Synthesising these insights, the study develops a framework that crosses artefact use (enabling vs. coercive; interactive vs. diagnostic) with temporal pacing (flexible vs. rigid), generating four trajectories: scaffolding, focused coordination, symbolic drift, and bureaucratic entrenchment. Theoretically, the study reframes formalisation as scaffolding and integrates previously fragmented literatures. Practically, it offers a diagnostic tool to help founders and investors calibrate their structures to strike a balance between discipline and agility.

Keywords: Startup Formalisation; Scaling; Temporal Structuring; Processual Formalisation.

1 Introduction

Startups are crucial drivers of economic dynamism that contribute disproportionately to job creation, innovation, and regional competitiveness (Haltiwanger et al., 2013; Shane, 2009; Coad et al., 2014). Yet they remain highly fragile. Most startups fail to survive in their first decade, and even those that attract venture capital often encounter breakdowns when informal ways of working can no longer support scale (Autio et al., 2021). The very practices that foster agility, namely informal decision-making, fluid role boundaries, and improvisation, become increasingly difficult to sustain when investors demand governance, employees expect career structures, and partners require reliable coordination (Brown and Eisenhardt, 1997; Eisenhardt and Tabrizi, 1995; Hellmann and Puri, 2002).

Organisation theory has long sought to explain this transition. Life-cycle models portrayed growth as a predictable shift from entrepreneurial informality towards bureaucratic maturity (Greiner, 1972; Hannan and Freeman, 1984; Aldrich and Ruef, 2006). While appealing, such models oversimplified scaling. Empirical research on this subject suggests that organisational practices rarely stabilise in their original form. Routines and artefacts are continually re-created through use, often diverging from initial designs (Feldman, 2000; Pentland and Feldman, 2008). Startups may adopt dashboards, Human Resources (HR) practices, or governance mechanisms early, only to revise, adapt, or abandon them as priorities change (Davila and Foster, 2007). Therefore, previous studies highlight a paradox: while established theory points to linear progression, contemporary research highlights cycles of adaptation, contestation, and reconfiguration.

This research advances the concept of processual formalisation to address this paradox: the ongoing crafting of roles, routines, artefacts, and temporal rhythms that coordinate work while preserving responsiveness. The formal elements remain revisable through their enactment in practice (Feldman and Pentland, 2003). By this usage, processual formalisation does not denote a stage of ‘becoming formal’

but a design perspective on how formal elements are iteratively codified and adjusted in use. This differs from professionalisation, the institutionalisation of managerial expertise oriented towards external legitimacy (Hellmann and Puri, 2002; Aldrich and Ruef, 2006). While they may unfold in parallel, treating them as distinct enables a more nuanced understanding of how startups balance order and adaptability, including enabling as well as coercive design choices in formal elements (Adler and Borys, 1996). Our empirical scope is digitally intensive, technology- and knowledge-based startups operating in venture-backed ecosystems. Growth pressures and legitimacy demands are acute, and where artefacts and routines can be iterated at low marginal cost and temporal pacing is a salient design lever (Davila, Foster and Jia, 2015; Pahnke et al., 2015; Leonardi, 2011). These contexts explain how formalisation emerges not as a single event, but as an evolving organisational practice. We later operationalise this view in a two-by-two framework that articulates four trajectories of processual formalisation.

Against this backdrop, this study addresses three guiding research questions: (1) How do startups attempt to introduce organisational order without undermining adaptability? (2) Under what conditions does early formalisation support agility, and under what conditions does it constrain it? (3) How do design choices, usage modes, and temporal pacing interact to influence the outcomes of formalisation?

The paper integrates insights from life-cycle models, professionalisation, control systems, routine dynamics, temporal structuring, institutional theory, and sociomateriality to propose a process-oriented account of startup formalisation (Greiner, 1972; Feldman, 2000; Orlikowski and Yates, 2002; Pentland and Feldman, 2008; Davila and Foster, 2007). Practically, it develops a diagnostic framework that equips founders, managers, and investors to recognise how artefact use and cadence generate divergent trajectories, from flexible scaffolding to bureaucratic entrenchment. The argument is that formalisation should not be treated as a one-off compliance exercise but as a scaffold whose value depends on how it is enacted over time.

2 Literature Review

This review synthesises eight strands that inform how startups formalise as they scale: life-cycle models, professionalisation, control systems, routine dynamics, temporal structuring, institutional theory, and sociomateriality. We proceed in that order, comparing each strand's core assumptions, mechanisms, strengths and limitations, and illustrative artefacts, as summarised in Table 1. For coherence, the labels used here mirror the subsection headings and the column titles in Table 1.

Although each strand offered distinctive insights, they have often evolved in relative isolation. Control systems scholarship tended to examine established organisations rather than entrepreneurial settings; sociomaterial perspectives were only intermittently applied to entrepreneurship; routine dynamics foregrounded micro-level enactment, whereas life-cycle models privileged macro-level progression. The review, therefore, surfaced complementarities and tensions across levels of analysis and types of formal elements, indicating where each lens clarifies or obscures the phenomenon of interest. The aim is not to adjudicate between perspectives but to identify the conditions under which they illuminate startup formalisation. This prepares the ground for our integrative contribution: a processual account that links the mode of artefact use with temporal pacing across contexts and sets up the framework developed later in the paper.

2.1 Life-cycle models: the dominant view

Life-cycle models remain the most widely disseminated accounts of organisational growth. Greiner's (1972) seminal framework describes ventures as moving through sequential phases: creativity, direction, delegation, coordination, and collaboration. Each phase ends in a crisis that necessitates structural change. Similar approaches have emphasised progression from conception to growth (Kazanjian, 1988) and have shaped both managerial teaching and investor expectations. The appeal of such models is clear, as they offer a roadmap for founders and a sense of predictability for stakeholders.

Yet their limitations are equally evident. By portraying growth as deterministic, these models underplay improvisation, feedback, and reversals that characterise entrepreneurial development (Van de Ven and

Poole, 1995; Langley, 1999). Levie and Lichtenstein (2010) further argued that life-cycle accounts are overly static, neglecting the recursive dynamics of organising. Entrepreneurship research has adapted these frameworks for new ventures (Eisenhardt and Schoonhoven, 1990) but often preserved their linear logic. In practice, startups do not "graduate" from informality to formality; rather, they experiment with structures, discard them, and revisit them repeatedly. This suggests that life-cycle models capture the aspiration for order but miss the ongoing and non-linear reality of formalisation.

2.2 Process perspectives

Process theorists took a different approach. Rather than stages, they focused on ongoing activities. Tsoukas and Chia (2002) argued that organisations are continuously becoming through everyday practices, while Langley et al. (2013) stressed that organisational realities emerge from ongoing action rather than discrete transitions. This perspective resonates strongly with entrepreneurial contexts. Startups exhibit constant experimentation (Baker and Nelson, 2005). Startups pivot in response to unexpected challenges, and the process lens captures this fluidity more accurately than life-cycle accounts. It reframes formalisation not as a destination but as a series of adjustments in routines, artefacts, and roles.

However, process approaches sometimes lack the practical clarity that founders seek. The emphasis on emergence and improvisation, while theoretically sophisticated, can feel abstract when dealing with concrete challenges like investor reporting or employee coordination. Recent studies have attempted to bridge this gap by applying process thinking to entrepreneurial paradoxes (Smith and Lewis, 2011) and scaling dynamics (Autio et al., 2021), pointing toward ways of translating process theory into more practical insights.

2.3 Professionalisation and early formalisation

Professionalisation research highlights why startups adopt formal practices earlier than stage models anticipate. Stinchcombe's (1965) liability of newness suggested that young ventures adopt established forms to gain legitimacy. Early empirical studies reinforced this logic of a sequence from informal to formal.

Yet more recent work has complicated the picture. Hellmann and Puri (2002) found that venture-backed startups often professionalised rapidly, appointing external CEOs and introducing HR systems far earlier than life-cycle models predicted. Davila and Foster (2007) also demonstrated that management control systems were often implemented before achieving product-market fit, particularly under the influence of investors. Kaplan, Sensoy and Strömberg (2009) documented early use of board rituals and reporting practices, suggesting that formalisation often precedes growth rather than follows it.

Timing, moreover, is not only a function of external imposition. Founders develop dashboards, metrics, and reporting frameworks to ensure alignment as coordination grows more complex. However, what remains underexplored is how these early practices affect performance. Some studies have reported increased investor confidence but reduced flexibility (Hellmann and Puri, 2002), while others have suggested that formalisation can serve as scaffolding for learning (Battilana et al., 2018). The key gap is not whether startups professionalise early, but how such practices interact with agility over time.

2.4 Control systems: enabling versus coercive

Control systems literature sharpens the question of how formalisation works in practice. Adler and Borys (1996) distinguish between enabling and coercive bureaucracy. Coercive systems constrain behaviour through rigid rules and monitoring; enabling systems provide tools and frameworks that help people coordinate while preserving discretion. Simons (1995) introduced a complementary distinction: diagnostic versus interactive use of controls. Dashboards, reports, and meetings can either police performance gaps or open conversations for learning. Edmondson (1999) added psychological safety as a condition under which structures enable experimentation rather than silence.

Together, these findings imply that the consequences of formalisation depend less on whether systems exist than on how they are enacted. Entrepreneurship studies often miss this nuance, treating control as a binary condition. Yet, recent work on agile management shows that enabling controls can support experimentation when combined with trust and iterative learning (Conforto et al., 2014). Linking these insights to startups suggests that artefacts like OKR systems or sprint boards are neither inherently constraining nor liberating; their effects emerge through enactment.

2.5 Routines dynamics

Routine dynamics literature offers a more sophisticated view of how organisations balance structure with adaptability. Feldman and Pentland (2003) distinguished between ostensive aspects (the abstract idea of a routine) and performative aspects (how it is enacted). This duality explains how routines can appear stable yet vary in practice.

Early accounts positioned routines as sources of inertia and stability (Nelson and Winter, 1982). Later work reconceptualised them as engines of change. Feldman (2000) demonstrated that routines are engines of change. Pentland and Feldman (2008) highlighted the recursive interplay of ostensive and performative elements. More recent scholarship has extended these insights into digital contexts to show how technologies shape routine variation (Pentland et al., 2020). For startups, this lens underscores that formalisation is provisional.

Roles, artefacts, and routines are introduced, tested, revised, and sometimes discarded, operating as scaffolds rather than endpoints. Coordination studies reinforce this point: Malone and Crowston (1994) and Okhuysen and Bechky (2009) have focused on how routines and artefacts align interdependent tasks, enabling collaboration rather than constraining it. However, formalisation, in this sense, is an ongoing dynamic rather than a linear progression.

2.6 Temporal structuring: rhythm and pacing

Time plays a crucial yet underexplored role in entrepreneurial formalisation. Brown and Eisenhardt (1997) have shown how firms in high-velocity industries combine predictable product cycles with flexibility inside those cycles. Gersick's (1988) punctuated equilibrium model likewise demonstrated how teams establish rhythm and then disrupt it under external pressure.

Orlikowski and Yates (2002) advanced the concept of temporal structuring while showing how organisations create shared temporal frameworks (deadlines, meeting schedules, and reporting cycles) that coordinate activity without determining specific behaviours. Such rhythms can be designed to be flexible, shaping organisational responsiveness.

For startups, temporal structuring offers a way to balance order and adaptability. Sprint cycles, board meetings, and investor updates create predictability while leaving room for experimentation and adaptation. Agile and lean approaches institutionalise iterative cycles that preserve learning and adaptability (Ries, 2011; Blank, 2013). Recent work has shown that cadence itself is a design choice: certain rhythms foster agility, while others ossify (Ancona et al., 2001). This suggests that time is not merely background but a crucial dimension of formalisation.

2.7 Institutional pressures and legitimacy

Institutional theory highlights how external expectations shape organisational forms. DiMaggio and Powell's (1983) account of isomorphism explains that organisations adopt similar structures partly to gain legitimacy regardless of their operational needs. Suchman's (1995) typology of pragmatic, moral, and cognitive legitimacy adds nuance, showing that ventures may need different forms of formalisation at different stages.

Yet organisations are not passive. Oliver (1991) emphasised strategic responses, from acquiescence to defiance. This more agentic view is echoed in entrepreneurship research. Gulati and DeSantola (2016) have explained how startups selectively adopt governance practices, while Lounsbury and Glynn (2019)

have highlighted the cultural narratives that make formalisation acceptable. Similarly, Wry and Lounsbury (2013) have added the role of identity work, suggesting that founders actively negotiate legitimacy through both structures and stories. These perspectives indicate that institutional pressures shape formalisation but do not determine it. Startups may comply, but they also manipulate, reinterpret, and hybridise practices to maintain both legitimacy and agility.

2.8 Sociomaterial perspectives: tools and practices

Sociomaterial perspectives examine how material artefacts, technologies, documents, and spaces shape organisational practices. Orlikowski (2000, 2007) argued that technologies and artefacts matter not as neutral tools but through their entanglement with human practices. Leonardi (2011) has maintained that the same tool can support collaboration or create a burden, depending on how it is configured and enacted over time.

For startups, this matters because many formal practices are mediated by artefacts, dashboards, CRMs, project management systems, and OKR platforms. These tools shape what is visible, measurable, and legitimate. They can scaffold learning, but they can also entrench surveillance. Monteiro and Parmigiani (2021) further stress that artefacts embed assumptions, making sociomaterial analysis crucial for understanding scaling.

Despite its relevance, sociomateriality remains marginal in entrepreneurship studies. Incorporating it helps reframe formalisation as a socio-technical assemblage rather than a purely organisational decision.

2.9 Synthesis and theoretical gaps

Across the reviewed literature, formalisation in startups emerges as more complex than the linear journey depicted in traditional stage models. Life-cycle perspectives highlight broad developmental phases but neglect improvisation and reversals. Professionalisation research shows that formal practices often appear earlier than expected, yet it typically treats their adoption as a discrete event rather than an evolving process. Control systems scholarship explains how structures can be enabling or coercive and is rarely applied in entrepreneurial settings. Routine dynamics illuminate how routines are both stable and adaptive, though their micro-level focus can underplay broader legitimacy demands. Institutional theory situates ventures in wider fields but risks a deterministic view of conformity, while sociomaterial perspectives stress artefacts and technologies, yet remain marginal in entrepreneurship studies.

Taken individually, these literatures offer partial insights; taken together, they suggest that startup formalisation is neither linear nor unidirectional but iterative, provisional, and contingent. Several common threads can be identified. First, formal practices are rarely permanent: they are adopted, revised, or discarded depending on context. Second, the impact of artefacts depends less on design than on enactment. Third, time plays a central but underexplored role: formalisation unfolds not only through practices but also through rhythms and cadences that coordinate work. Finally, external legitimacy pressures and material artefacts shape what practices are adopted and how they endure.

To consolidate these insights, Table 1 compares the dominant perspectives on startup formalisation. It maps their core assumptions, mechanisms, strengths, limitations, and illustrative artefacts. The comparison highlights both complementarities and blind spots: while each stream sheds light on particular dynamics, none alone fully explains how ventures formalise while maintaining adaptability.

This motivates the integrative framework developed in Chapter 4. Building on the contrasts made explicit in Table 1, the review advances a model that combines mode of artefact use (enabling vs coercive; interactive vs diagnostic) with temporal pacing (flexible vs rigid). As elaborated in the findings, this interaction generates distinct trajectories of startup formalisation: scaffolding, focused coordination, symbolic drift, and bureaucratic entrenchment (Figure 1).

Stream	Dominant View	Key Mechanisms	Strengths	Limitations	Illustrative Artefacts
Life-cycle models	Linear stages of growth	Crises trigger transitions (Greiner, 1972)	Clear roadmap; intuitive	Deterministic; ignores improvisation (Levie and Lichtenstein, 2010)	Hierarchies, departments
Process perspectives	Organisations as ongoing becoming	Continuous practices (Tsoukas and Chia, 2002)	Captures fluidity, experimentation	Abstract; little managerial guidance	Pivots, ad-hoc routines
Professionalisation	Formalisation for legitimacy	Early adoption of HR, reporting (Hellmann and Puri, 2002)	Explains early formalisation	Focus on timing, not process	Boards, HR systems
Control systems	Formalisation as control	Enabling vs coercive (Adler and Borys, 1996); diagnostic vs interactive (Simons, 1995)	Links design to outcomes	Often treated as binary; rare in startups	KPIs, OKRs, dashboards
Routine dynamics	Routines as stability/change	Ostensive vs performative (Feldman and Pentland, 2003)	Micro-level adaptation; explains variation	Hard to translate into practice	Hiring, onboarding, stand-ups
Temporal structuring	Rhythm enables agility	Temporal frameworks (Orlikowski and Yates, 2002)	Highlights cadence; agility through time	Underused in entrepreneurship	Sprints, investor updates
Institutional theory	Formalisation under legitimacy pressure	Isomorphism (DiMaggio and Powell, 1983); legitimacy types (Suchman, 1995)	Explains convergence; field context	Can be deterministic; underplays agency	Governance, CSR
Sociomateriality	Artefacts shape practices	Tech-human entanglement (Orlikowski, 2000; Leonardi, 2011)	Brings tools into view; relevant for digital startups	Marginal in entrepreneurship	CRMs, Slack, OKRs

Table 1. Perspectives on startup formalisation.

3 Methodology

We conduct an integrative review to assemble and interpret conceptually heterogeneous work on startup formalisation. The aim is to develop mid-range theory by combining insights across traditions rather than to exhaustively catalogue studies (Torraco, 2005; Whittemore and Knafl, 2005; Snyder, 2019). Our secondary objective is to surface mechanisms and boundary conditions that explain when and how formal elements enable or constrain adaptability.

Between March and August 2025, a broad search was conducted using Google Scholar as the primary database. The breadth of coverage for relevant work, combined with its indexing of both foundational and contemporary work, made it suitable for capturing the diverse literatures relevant to this study. Search strings combined terms such as: "startup* OR entrepreneurial venture* AND formalisation," "entrepreneurial venture* AND (management control systems OR MCS)," "startup* AND (routine dynamics OR routines)," and "startup* AND (temporal structuring OR pacing OR rhythm)." Complementary snowballing was applied by reviewing the references of highly cited papers and by tracing forward citations of canonical works (e.g. Greiner, 1972; Stinchcombe, 1965; Feldman, 2000).

The search produced 161 papers (see Appendix A for the full list) in its initial phase. A multi-stage screening process was applied: (1) Deduplication: duplicate entries and near-identical working papers were removed. (2) Relevance filtering: papers were retained only if they explicitly addressed entrepreneurial organising, startup growth, or formalisation processes. Purely financial, marketing, or technology adoption studies were excluded. (3) Quality assessment: preference was given to papers published in top-tier journals (e.g. Academy of Management Journal, Organization Science, Journal of Business Venturing, Strategic Management Journal). Practitioner-oriented or purely descriptive reports were excluded, but some were included that provided seminal conceptual insights. (4) Theoretical contribution: works were prioritised if they made a foundational theoretical contribution (e.g. Greiner, 1972; DiMaggio and Powell, 1983) or offered more recent conceptual or empirical developments (e.g. Gulati and DeSantola, 2016; Autio et al., 2021).

This process yielded a final corpus of 63 papers. The corpus balances classics and recent advances across eight theoretical streams: life-cycle models, process perspectives, professionalisation, control systems, routine dynamics, temporal structuring, institutional theory, and sociomateriality.

Analysis proceeded in three iterative stages. (1) Thematic clustering: Papers were grouped into the eight streams based on their dominant theoretical framing. This stage produced the comparative mapping shown in Table 1. (2) Comparative coding: Within each stream, papers were coded for their dominant assumptions, mechanisms, and boundary conditions. We employed a hybrid coding approach: initial codes were derived deductively from the guiding research questions (e.g., "forms of formalisation," "adaptability outcomes"), while additional codes were added inductively as patterns emerged across the corpus. Coding reliability was assured through iterative author discussions and consensus resolution. The coding protocol and multi-stream classification are documented in the accompanying corpus file to support methodological transparency. (3) Integrative synthesis: Cross-stream analysis highlighted complementarities and blind spots. This iterative step generated the four findings reported in Section 4: Cyclical rather than linear trajectories; The enactment-dependent role of artefacts; the structuring role of temporal rhythms; and the interplay of institutional and sociomaterial pressures.

The synthesis followed Snyder's (2019) recommendation for integrative reviews: moving beyond description to generate conceptual integration. To enhance rigour, the review followed established guidelines for integrative reviews (Torraco, 2005; Snyder, 2019). Screening criteria were transparently applied, classics and contemporary studies were balanced, and multiple literatures were included to reduce single-theory bias. Additionally, the study also recognises limitations. Google Scholar may overrepresent certain outlets, and the reliance on English-language publications may exclude relevant work. The final corpus is selective rather than exhaustive. This is consistent with the integrative purpose: to provide conceptual synthesis, not a comprehensive census.

4 Findings and Discussions

This section presents four interrelated findings, each followed by a discussion of its theoretical and practical implications. Together, they highlight how startups formalise in ways that are provisional, cyclical, and context-dependent, rather than linear or deterministic.

4.1 Formalisation unfolds in cycles, not stages

Prior research suggests that startups rarely follow a straight line from informal origins to professional maturity. Instead, formalisation tends to emerge through loops in which practices are introduced, tested, revised, and sometimes abandoned. Stage-based models such as Greiner's (1972) five phases or Kazanjian's (1988) developmental progression assume that formalisation follows product-market fit in sequential steps. Studies complicate this view. Hellmann and Puri (2002) demonstrated that venture-backed firms often adopt formal boards and HR practices before achieving validation. Davila and Foster (2007) report dashboards and reporting rituals appearing early in development. These moves are provisional, subject to adaptation or abandonment (Feldman, 2000; Pentland and Feldman, 2008). This cyclical and provisional nature is exemplified by companies like Airbnb, whose evolving governance and reporting dashboards reflect ongoing adjustment rather than linear maturation (Gulati and DeSantola, 2016).

This finding qualifies the determinism of life-cycle models and aligns more closely with process perspectives that view organisations as continually "becoming" (Tsoukas and Chia, 2002; Langley et al., 2013). We propose that formalisation functions less as a one-time transition than as a scaffold that entrepreneurs repeatedly adjust. This scaffolding view explains how ventures introduce organisational order without fossilising adaptability, which addresses RQ1. It also anticipates later insights: artefact effects hinge on enactment (Section 4.2), while cycles are often paced by rhythms (Section 4.3).

4.2 Artefacts matter less in design than in use

A second pattern concerns artefacts. Their effects depend less on technical design than on enactment. Adler and Borys (1996) distinguish enabling from coercive systems, while Simons (1995) contrasts diagnostic and interactive uses. The same dashboard encourages dialogue and learning when enacted interactively, or reinforces surveillance when treated diagnostically. Edmondson (1999) adds that psychological safety conditions whether teams experience routines as scaffolds or as constraints. Therefore, in startups, artefacts open possibilities in some contexts but close them down in others. This dynamic is evident in startups whose investor dashboards foster adaptive decision-making and team learning in supportive cultures, but where similar tools produce defensiveness and reduced collaboration in less supportive settings (Davila and Foster, 2007).

The ambivalence of formal structures is thus clarified: they are neither inherently enabling nor constraining. Much depends on the cultural context of enactment. Under enabling and interactive use, artefacts support learning and coordination, whereas under coercive and diagnostic use, they generate defensiveness and conformity. This clarifies RQ2 by specifying the conditions under which early formalisation supports or undermines agility. It also complements findings in section 4.1. Artefacts are provisional, and their fate depends on how teams use them in practice.

4.3 Temporal rhythms are a design lever

Time emerges as a central yet under-examined dimension of startup formalisation. Studies of high-velocity contexts, such as those by Brown and Eisenhardt (1997), demonstrate that predictable innovation cycles, combined with flexibility, enable adaptation. Orlikowski and Yates (2002) describe this as temporal structuring: the creation of shared cadences such as deadlines, meetings, or reporting cycles. In startups, investor updates, sprint reviews, and product launches impose rhythms that shape behaviour. Depending on pacing, these cycles either scaffold experimentation or pull ventures into short-termism and gaming. This dynamic is evident in startups whose investor dashboards foster adaptive

decision-making and team learning in supportive cultures, but where similar tools produce defensiveness and reduced collaboration in less supportive settings (Davila and Foster, 2007). Conversely, symbolic drift and bureaucratic entrenchment emerge in firms where artefacts like OKR platforms are used perfunctorily or where rigid compliance routines dominate, respectively.

Figure 1 synthesises the interplay between artefact use and temporal pacing to outline four trajectories of startup formalisation:

— P1: Scaffolding. Flexible pacing, enabled by use, fosters learning and collective problem-solving (e.g. sprint retrospectives).

— P2: Focused coordination. Enabling artefacts under rigid pacing sharpens alignment but risks burnout and loss of slack (e.g. weekly investor updates).

— P3: Symbolic drift. Coercive artefacts with flexible pacing produce inconsistent practices, misalignment, and symbolic adoption (e.g. OKR platforms filled perfunctorily).

— P4: Bureaucratic entrenchment. Coercive use under rigid pacing generates conformity, gaming, and inertia (e.g. rigid compliance reporting).

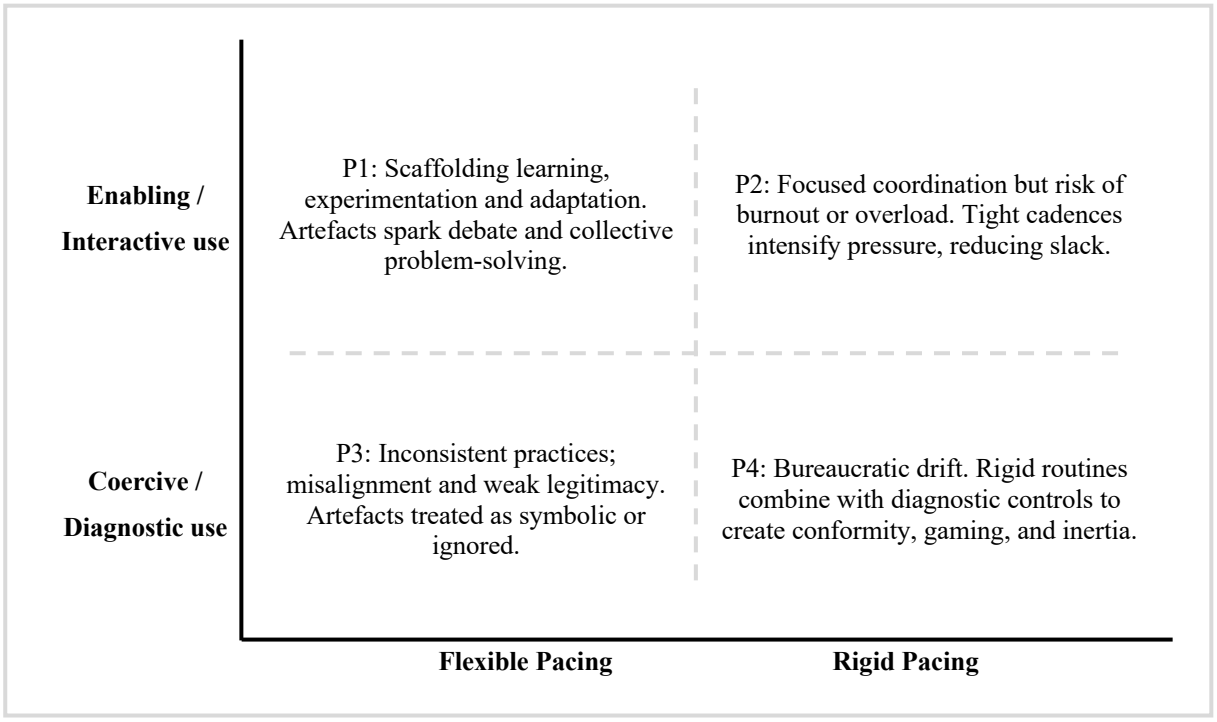

Figure 1. Interaction of artefact use and temporal pacing in startup formalisation. Each quadrant illustrates a different trajectory: scaffolding (e.g. sprint retrospectives), focused coordination (e.g. weekly investor updates), drift (e.g. symbolic OKR platforms), and bureaucratic entrenchment (e.g. rigid compliance reporting).

4.4 Formalisation is shaped by institutional and sociomaterial pressures

Startups do not design in isolation. Institutional theory shows that legitimacy pressures push ventures to adopt "best practice" structures (DiMaggio and Powell, 1983; Suchman, 1995). Boards, governance templates, and even pitch-deck conventions diffuse across ecosystems. Yet organisations retain agency: Oliver (1991) notes that they may acquiesce, compromise, or resist. Sociomaterial studies add that artefacts themselves shape work practices: tools embed assumptions about performance and visibility

(Orlikowski, 2007; Leonardi, 2011). OKR platforms, investor dashboards, and project-management software not only record activities but also shape what counts as legitimate progress.

This finding situates formalisation within broader contexts of pressure and materiality. Startups adopt practices partly to satisfy external expectations, sometimes symbolically (Oliver, 1991). Artefacts, once introduced, reconfigure work in ways not fully under managerial control. We propose that the strength of legitimacy pressures and the configurational features of tools moderate the relationships in Figure 1, amplifying the likelihood of Symbolic drift (P3) under loose pacing and increasing the risk of Bureaucratic entrenchment (P4) under tight pacing. These insights cut across all three research questions by showing that order is introduced under legitimacy demands (RQ1), agility is supported or constrained by institutional context as much as by internal design (RQ2), and the interplay of pacing and use is embedded in socio-technical arrangements (RQ3).

4.5 Synthesis

Synthesising across these findings, formalisation appears as a provisional and negotiated process. Startups repeatedly cycle through practices (Finding 4.1), whose effects depend on enactment (Finding 4.2), pacing (Finding 4.3), and external pressures (Finding 4.4). Formalisation is neither a one-time transition nor a neutral toolkit. Instead, outcomes depend on how artefacts are enacted, how rhythms are designed, and how institutional and sociomaterial contexts shape adoption. This integrative perspective reframes formalisation as scaffolding: structures that coordinate in the present yet remain open to revision.

5 Contributions and Implications

The integrated review makes three contributions to entrepreneurship and organisation theory. It also offers practical guidance for founders and investors.

5.1 Theoretical contributions

First, the review reframes formalisation in startups as a processual practice shaped by cycles and rhythms. Classic stage and life-cycle models (Greiner, 1972; Kazanjian, 1988) assume a linear shift from informality to maturity. Our synthesis shows instead that ventures repeatedly introduce, adapt, and sometimes discard structures. Formalisation thus resembles provisional scaffolding rather than a one-time transition. This contribution extends routine dynamics research (Feldman, 2000; Feldman and Pentland, 2003) by showing that outcomes hinge not only on the ostensive-performative duality of routines but also on their temporal pacing.

Second, this review integrates literature that is typically treated in isolation. Insights from professionalisation (Stinchcombe, 1965; Hellmann and Puri, 2002), control systems (Adler and Borys, 1996; Simons, 1995), temporal structuring (Orlikowski and Yates, 2002), institutional theory (DiMaggio and Powell, 1983; Suchman, 1995), and sociomateriality (Orlikowski, 2007; Leonardi, 2011) are brought together in a unified framework. This cross-level integration connects macro-level legitimacy demands with micro-level enactments of artefacts and rhythms, demonstrating how field-level pressures and local practices co-produce trajectories of formalisation.

Third, the framework generates testable propositions that advance entrepreneurship research beyond conceptual statements. The interaction of artefact use (enabling vs coercive; interactive vs diagnostic) and temporal pacing (flexible vs rigid) yields four trajectories: scaffolding, focused coordination, symbolic drift, and bureaucratic entrenchment (see Figure 1). These propositions specify mechanisms that can be empirically examined through longitudinal case studies, ethnographies, or computational models.

5.2 Boundary conditions

The framework applies most directly to venture-backed, knowledge-intensive startups in high-velocity environments, where legitimacy pressures are acute and artefact use is pervasive. In lifestyle businesses, family firms, or subsistence ventures, formalisation may follow different patterns. Temporal pacing may be looser, and artefact adoption less central, leading to trajectories not captured here. Recognising these boundary conditions prevents overgeneralisation and highlights the need for comparative research across entrepreneurial contexts.

5.3 Practical implications

For founders and investors, the framework functions as a diagnostic tool rather than a prescriptive recipe. Each trajectory (P1-P4) translates into observable patterns, risk signals, and design levers:

— P1: Scaffolding. *Observable:* Dashboards and sprint reviews stimulate debate and problem-solving. *Risk:* Rhythms may become too loose, undermining salience. *Design lever:* Preserve flexibility in pacing and reinforce interactive use.

— P2: Focused Coordination. *Observable:* Weekly updates or OKR cycles sharpen focus and alignment. *Risk:* Burnout, gaming of metrics. *Design lever:* Recalibrate cadence, supplement diagnostic reviews with reflective spaces.

— P3: Symbolic Drift. *Observable:* Artefacts adopted for optics but ignored in daily practice. *Risk:* Misalignment, weak legitimacy. *Design lever:* Embed artefacts in daily routines, link them to internal value as well as external legitimacy.

— P4: Entrenchment. *Observable:* Rigid compliance reports dominate managerial attention. *Risk:* Bureaucracy, inertia, reduced responsiveness. *Design lever:* Relax cadence where feasible, reorient artefact use toward dialogue and experimentation.

A practical takeaway is to treat formalisation as adjustable scaffolding: monitor whether practices drift (P3) or ossify (P4) and recalibrate design, use and pacing accordingly.

5.4 Positioning in scaling debates

Scaling research often oscillates between two poles. Stage and life-cycle models reflect growth as a march toward structure (Greiner, 1972; Kazanjian, 1988), while lean startup approaches recognise continual experimentation (Ries, 2011; Blank, 2013). Our framework bridges these views by showing that formalisation and experimentation are interwoven. Startups both codify and improvise, both scaffold and adapt, depending on artefact enactment and temporal design. Scaling, therefore, is not a progression from agility to bureaucracy but an iterative balancing act.

5.5 Limitations and future research

This study adopted a conceptual orientation which is grounded in an integrative review. The corpus of this review comprises 63 articles, which is broad in terms of scope but selective in terms of English-language management journals and top-tier outlets. To further advance research in this domain, empirical work is needed to investigate the proposed dynamics in practice. Promising avenues for such investigations include: Longitudinal ethnographies to observe how artefact use and rhythms evolve in real time; Comparative studies across industries and funding regimes to assess boundary conditions; Computational modelling of pacing dynamics to simulate how artefact-cadence interactions affect adaptation; and cross-cultural research to examine how legitimacy pressures vary in different ecosystems. Future work should test, refine and extend P1-P4 and the moderating role of temporal pacing and institutional-sociomaterial conditions.

6 Conclusion

This study set out to explore how startups formalise as they scale, and how they can introduce organisational order without undermining adaptability. Traditional accounts reflect scaling as a linear passage from informality to professionalism, guided by stage or life-cycle models (Greiner, 1972; Kazanjian, 1988). However, our integrative review indicates otherwise. Formalisation in startups is not a one-time transition but a provisional, cyclical, and negotiated process shaped by artefact use, temporal rhythms, and external pressures. Four findings emerge from this review. First, formalisation unfolds in cycles rather than stages: practices are introduced, revised, or discarded as ventures experiment and adapt. Second, artefacts matter less in design than in use: their impact depends on whether they are enacted in enabling or coercive, interactive or diagnostic ways. Third, temporal rhythms serve as a design lever: flexible pacing can scaffold experimentation, while rigid cadences often pull ventures into short-termism or bureaucratic inertia. Fourth, institutional and sociomaterial pressures underscore that startups never design in isolation; legitimacy demands and artefacts themselves shape which practices take root and how they endure.

Together, these findings yield a processual framework that integrates insights from professionalisation, control systems, routine dynamics, temporal structuring, institutional theory, and sociomateriality. By crossing artefact use with temporal pacing, the framework identifies four trajectories of formalisation, scaffolding, focused coordination, symbolic drift, and bureaucratic entrenchment. This model contributes theoretically by reframing formalisation as scaffolding, by integrating literatures often studied in isolation, and by generating propositions that can be tested in future work.

The study also provides practical implications for founders and investors. Formalisation should not be treated as bureaucracy but as scaffolding: structures that coordinate in the present yet remain adjustable. Monitoring whether practices drift or entrench, and recalibrating artefact use and cadence accordingly, offers a pathway to balance reliability with adaptability during scaling. However, there are also certain limitations of this work.

The review is selective rather than exhaustive, focusing on English-language sources and management journals. Although the framework is based on theory but it needs to be tested through empirical investigations such as longitudinal case studies, ethnographies, and comparative designs. Future research in these domains will help to understand how startups formalise under varying institutional and cultural conditions.

In conclusion, this study reimagines startup formalisation as an iterative and context-specific practice. Far from a march toward bureaucracy, scaling is better understood as an ongoing process of calibration among artefacts, rhythms, and legitimacy demands. By shifting the lens from stages to cycles, from structures to scaffolds, and from design to enactment, the study provides deeper insights to both scholars and practitioners into how ventures grow while striving to remain agile.

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