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TEMPORAL COMPRESSION AND COGNITIVE LOAD IN MANAGERIAL DECISION-MAKING: A PSYCHOLOGICAL FRAMEWORK FOR SEQUENTIAL CHOICE AND PRIORITY DISTORTION

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Abstract. Managers rarely make isolated decisions. They work through sequences of choices while deadlines, interruptions, information volume, and competing priorities compress the time available for deliberation. This conceptual article introduces temporal compression as a management-psychology construct describing the combined effect of objective time scarcity, perceived time pressure, decision density, and cognitive load on managerial choice. The paper distinguishes temporal compression from the stronger and empirically contested claim that repeated choice inevitably produces decision fatigue. Research shows that time pressure can narrow information search, alter decision rules, heighten anxiety, and change risk processing; however, recent large-scale evidence also cautions against assuming a universal deterioration of decision quality across a decision sequence. Integrating research on time pressure, cognitive load, decision fatigue, intertemporal bias, and sequential decision-making, the article proposes a five-mechanism framework: attentional narrowing, attribute compression, default migration, horizon shortening, and recovery failure. Practical implications include decision triage, protected decision windows, pre-specified criteria, batching of low-stakes choices, strategic pauses, and explicit separation of urgent from important decisions. The framework extends managerial decision-making research by focusing on the temporal architecture of choice rather than on personality or decision style. No new empirical data are reported.

Keywords: managerial decision-making; time pressure; cognitive load; sequential choice; decision fatigue; temporal framing; priority distortion; intertemporal decision-making

1. Introduction

Managerial decision-making is often modeled as if each decision begins with a clearly defined problem and ends with a discrete choice. Real managerial work is temporally crowded. A manager may move from personnel issues to budget allocations, respond to urgent messages, approve operational exceptions, negotiate deadlines, evaluate proposals, and return to strategic questions within a single work period. The quality of any one decision is therefore partly shaped by decisions made before it and by decisions anticipated after it.

This article proposes the construct of temporal compression to capture this condition. Temporal compression occurs when the temporal space available for managerial cognition becomes constrained by four interacting factors: objective time scarcity, perceived time pressure, decision density, and cognitive load. The concept is intentionally broader than time pressure and more cautious than decision fatigue. It does not assume that decision quality must deteriorate after repeated choice. Instead, it asks how temporal conditions reorganize attention, information search, priority weighting, and the balance between immediate and long-term considerations.

The distinction is important because decision fatigue has become a popular explanation for inconsistent professional judgment, yet the empirical picture is mixed. A conceptual analysis by Pignatiello et al. (2018) described decision fatigue as a state associated with impaired choice after

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repeated decision demands. More recently, Andersson et al. (2025), using large-scale healthcare field data in a registered report, found no evidence for the hypothesized decision-fatigue pattern. The broader ego-depletion literature has also undergone substantial theoretical revision and replication debate, although contemporary reviews continue to examine conditions under which extended self-regulation may alter behavior (Baumeister et al., 2024).

For management psychology, the useful question is therefore not whether managers possess a simple finite "decision resource." A more productive question is how sequences of demanding choices under compressed time alter decision strategy. This focus is distinct from the author's previous work on managerial decision models, socio-psychological determinants, and decision-making under uncertainty. The present article centers on temporal architecture and cognitive capacity as conditions that can distort organizational priorities even when managers are experienced and motivated (Nazarov, 2021, 2024, 2026).

2. Time Pressure, Cognitive Load, and Managerial Choice

Time pressure changes how people process information. Mann and Tan (1993) found that perceived time pressure reduced the number of objectives, alternatives, and consequences considered in decision tasks. Edland (1994) similarly showed that time pressure can shift attention toward the most important attribute and increase reliance on simplified decision rules. Maule et al. (2000) demonstrated that time pressure affects both affective state and information-processing strategy, with effects varying according to task structure. These studies suggest that time pressure does not merely accelerate the same decision process; it can qualitatively change the process.

In managerial contexts, time pressure usually coexists with information overload and complexity. Phillips-Wren and Adya (2020) identify time pressure, information overload, complexity, and uncertainty as major decision stressors that can impair decision quality. Recent work on strategic decision situations also emphasizes cognitive load as a driver of perceived task complexity (Mundlos et al., 2025). A manager facing temporal compression must therefore do two things at once: process a complex choice and manage the cost of processing it quickly.

Decision speed is not inherently harmful. Shepherd et al. (2021) show that the relationship between strategic decision speed and decision quality depends on environmental conditions. Rapid decisions can be valuable when delay has high opportunity costs, when managers possess relevant experience, or when the decision structure is familiar. The problem is not speed itself but unexamined compression: situations in which the decision process becomes narrower without an explicit understanding of what is being omitted.

3. Methodological Approach

The paper uses an integrative conceptual review to connect research on time pressure, cognitive load, sequential decision-making, decision fatigue, and intertemporal choice. It does not report a new empirical study. The literature is treated cautiously because the constructs differ in definition and evidential strength. In particular, the article does not equate decision fatigue with ego depletion or mental fatigue, and it does not assume that sequential choice necessarily causes monotonic decline in decision quality.

The conceptual objective is to identify mechanisms that can be observed and tested without relying on a disputed resource-depletion model. Five mechanisms are proposed: attentional narrowing, attribute compression, default migration, horizon shortening, and recovery failure. Each mechanism describes a plausible change in decision process that can occur under temporal compression and can be operationalized in future field or experimental research.

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4. Five Psychological Mechanisms of Temporal Compression

4.1. Attentional narrowing

Under time pressure, managers allocate attention selectively. Selectivity is necessary, but the selection criterion may shift from diagnostic importance to salience, urgency, or ease of retrieval. The manager may focus on the loudest stakeholder, the newest message, or the most measurable indicator. Attentional narrowing is therefore not simply "less information"; it is a redistribution of attention. The risk is priority substitution: information that is urgent becomes treated as if it were strategically important.

4.2. Attribute compression

Multi-attribute decisions require comparison across dimensions such as cost, quality, timing, risk, employee impact, ethics, and reversibility. Under temporal compression, managers may reduce this dimensionality. Edland's (1994) work suggests that time pressure can increase focus on a dominant attribute. Attribute compression can be adaptive when one attribute is genuinely decisive, but dangerous when a complex decision is simplified prematurely. A hiring decision reduced to speed of vacancy closure, or a reform reduced to short-term cost, can become technically efficient while strategically distorted.

4.3. Default migration

As cognitive demands accumulate, decision makers may rely more heavily on defaults, routines, precedent, or previously acceptable solutions. This does not require a literal depletion of a finite resource. It can arise because defaults reduce search costs and provide defensible justification. The managerial risk is path dependence: a routine that was designed for ordinary conditions becomes the automatic response to a non-routine problem. Sequential decision-making research increasingly emphasizes that behavior across a sequence can reveal underlying decision rules rather than simple fatigue (Kagan et al., 2025).

4.4. Horizon shortening

Temporal compression can also change the time horizon of evaluation. Immediate outcomes are concrete and cognitively accessible, while long-term consequences require simulation, uncertainty tolerance, and delayed evaluation. Research on intertemporal decision-making documents multiple biases that can alter the weighting of present and future outcomes (Gülüm Taş et al., 2026). Under managerial time pressure, horizon shortening may appear when near-term deadlines systematically dominate capacity building, prevention, or institutional trust.

This mechanism is especially important for resource allocation. Managers may repeatedly approve small urgent expenditures while postponing larger investments whose value appears later. The resulting pattern can be individually understandable and organizationally irrational: each local choice responds to urgency, but the sequence gradually crowds out strategic priorities.

4.5. Recovery failure

Decision sequences are not problematic only because they contain many choices. They become more difficult when there is no opportunity to reset attention. Interruptions, meeting transitions, and continuous digital communication can prevent managers from cognitively closing one decision before entering the next. Recovery failure refers to insufficient opportunity to restore attentional orientation, not necessarily to physiological exhaustion.

This distinction allows a more evidence-sensitive interpretation of decision fatigue. The absence of a universal fatigue effect in the large-scale study by Andersson et al. (2025) does not imply that temporal organization is irrelevant. It suggests that researchers should specify mechanisms and contexts more precisely. Some professionals may use routines, team support, or task structures that

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stabilize judgment across long sequences. Others may experience substantial strategy drift when decisions are heterogeneous, interruptions are frequent, or stakes change rapidly.

Mechanism	**Process under temporal compression**	**Typical managerial distortion**	**Observable indicator**
Attentional narrowing	Attention shifts to salient or urgent cues	Urgency replaces strategic importance	Fewer information categories considered; repeated focus on latest cues
Attribute compression	Complex trade-offs reduced to one or two dimensions	Cost, speed, or visibility dominates broader value	Reduced number of explicit criteria in decision records
Default migration	Greater reliance on routine, precedent, or status quo	Non-routine problems receive routine solutions	Increasing default/precedent use across sequence
Horizon shortening	Immediate outcomes receive disproportionate weight	Long-term capacity and prevention are postponed	More short-horizon justifications late in decision sequences
Recovery failure	Insufficient cognitive reset between demanding choices	Carryover of urgency, emotion, or framing	High transition density; little protected deliberation time

5. A Decision-Architecture Response

Temporal compression should be managed through decision architecture rather than through generic advice to "focus more." The first tool is decision triage. Decisions can be classified by reversibility, strategic consequence, uncertainty, and stakeholder impact. Low-stakes reversible decisions can be delegated or standardized, while high-impact irreversible decisions receive protected deliberation. This reduces decision density without assuming that managers should personally decide everything.

The second tool is the protected decision window. High-complexity choices should be scheduled in periods with fewer interruptions and before long sequences of low-value approvals whenever possible. The purpose is not to identify a universal "best time of day" but to align cognitive demand with available attentional capacity.

The third tool is criterion pre-specification. For recurring decisions, managers can define core criteria before time pressure peaks. Pre-specified criteria protect against attribute compression because the manager does not have to reconstruct the decision framework under deadline. Nazarov's (2024) discussion of managerial decision models and technologies similarly emphasizes structured stages and clarity of decision requirements; the temporal-compression perspective adds the question of when those structures are most likely to collapse.

The fourth tool is batching of low-stakes choices. Administrative approvals, routine scheduling, and standardized requests can often be grouped into designated periods. Batching reduces context switching and protects strategic attention. However, batching should not create a long end-of-day queue in which decisions with hidden complexity are processed mechanically. Triage must precede batching.

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The fifth tool is the strategic pause. A short pause before commitment can be used to ask four questions: What problem am I solving? Which criterion is currently dominating my attention? What future consequence am I underweighting? Is this decision genuinely urgent or merely presented as urgent? The pause is not intended to slow all decisions. It is a metacognitive checkpoint designed to detect process compression.

The sixth tool is distributed decision capacity. Managers can reduce temporal compression by clarifying decision rights, developing employee competence, and creating reliable escalation rules. When every ambiguous issue is pushed upward, senior managers become temporal bottlenecks. Distributed capacity therefore has a psychological function: it preserves executive attention for decisions that genuinely require hierarchical judgment.

5.1. Urgency signaling and organizational contagion

Temporal compression is not produced only by clocks and workload. It is also socially transmitted. In many organizations, urgency is a status signal: messages marked ‘urgent,’ rapid-response expectations, and visible busyness communicate importance. Managers can therefore experience perceived time pressure even when objective deadlines are flexible. Mann and Tan’s (1993) findings on perceived time pressure are relevant here because they show that the subjective experience of being hurried can alter information processing. Organizational culture can thus manufacture compression through norms rather than actual scarcity.

Urgency is also contagious across hierarchy. When senior managers communicate every request with the same high-intensity temporal framing, subordinate managers lose the ability to discriminate between routine, important, and genuinely critical issues. This creates what may be called urgency inflation: as more issues are labeled urgent, the signal becomes less informative while the psychological cost remains. Employees and lower-level managers respond by shortening their own decision horizons, interrupting planned work, and forwarding ambiguity upward. The result is a feedback loop in which temporal compression reproduces itself across levels of the organization.

Reducing urgency inflation requires explicit norms. Leaders can distinguish response time from decision time, specify when acknowledgement is sufficient, and reserve urgent labels for predefined conditions. They can also communicate the degree of reversibility: a rapid provisional decision may be appropriate when it is easy to correct, while an irreversible decision may require deliberate delay. Such norms reduce unnecessary time pressure without slowing genuinely time-sensitive operations.

5.2. Building a temporal hierarchy of decisions

Organizations typically create hierarchies of authority but rarely create explicit hierarchies of deliberation time. Yet not all managerial choices deserve the same temporal treatment. A useful temporal hierarchy would classify decisions by consequence, reversibility, novelty, and coordination requirements. Routine reversible choices could be standardized or delegated; high-consequence irreversible choices would receive protected analysis; novel but reversible choices could be treated as experiments with scheduled review.

A temporal hierarchy also improves fairness in resource allocation. Without it, visible emergencies can repeatedly displace less visible but strategically important work such as staff development, prevention, maintenance, and relationship building. By pre-allocating protected time to long-horizon decisions, organizations reduce the probability that strategic priorities will be crowded out by a succession of locally rational urgent choices. In this sense, temporal design is not merely a productivity intervention; it is a governance mechanism that protects organizational priorities from psychological distortion.

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6. Implications for Research and Manager Development

Future research should measure temporal compression directly rather than using time of day as a proxy for fatigue. A field measure could combine decision density, interruption frequency, perceived time pressure, task switching, and the complexity of consecutive choices. Decision-process indicators—number of criteria considered, search breadth, default reliance, temporal horizon, and reversibility analysis—could then be modeled as outcomes.

Experimental research could manipulate sequence heterogeneity. Ten similar decisions may create different psychological demands from ten decisions that require repeated switching between personnel, financial, ethical, and strategic frames. Similarly, perceived urgency can be manipulated independently of actual time limits to distinguish the cognitive effect of clock time from the psychological effect of being hurried.

Manager development should include temporal self-awareness. Managers can learn to recognize when their decision process is narrowing and to use explicit rules for triage, delegation, and review. This extends conventional decision training. Knowledge of rational models is valuable, but managers also need to know when their work environment makes those models difficult to apply.

7. Limitations

This article is conceptual and does not establish the causal validity of the proposed five mechanisms. The term temporal compression is offered as an integrative construct and requires discriminant validation against related constructs such as time pressure, workload, cognitive load, mental fatigue, and information overload. The mechanisms may also differ by expertise. Experienced managers can compress information efficiently by recognizing meaningful patterns, whereas novices may simplify because they lack structured knowledge.

The framework also does not assume that slower decisions are better. Excessive delay can generate opportunity costs, ambiguity, and diffusion of responsibility. The normative goal is not maximal deliberation but appropriate temporal fit: the amount and structure of deliberation should match the decision's complexity, reversibility, and consequences.

8. Conclusion

Managerial decision quality is shaped not only by what managers know or which decision style they prefer but by the temporal architecture within which choices occur. Temporal compression provides a framework for understanding how time scarcity, perceived urgency, decision density, and cognitive load can reorganize attention and priorities. The proposed mechanisms—attentional narrowing, attribute compression, default migration, horizon shortening, and recovery failure—offer testable alternatives to a simplistic assumption that repeated decisions inevitably exhaust a finite resource. For practice, the central implication is clear: organizations should design the flow of decisions, not merely train individual decision makers. Decision triage, protected deliberation, pre-specified criteria, careful batching, strategic pauses, and distributed decision rights can help preserve decision quality when managerial time is structurally compressed.

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