

Hope Is Not a Strategy: Behavioral Bias and Decision Quality in Large-Scale Capital Programs

Abstract

Large-scale capital programs frequently underperform against cost, schedule, and risk expectations despite advances in technical planning and project controls. While traditional explanations emphasize structural and operational challenges, this research examines the behavioral drivers that influence decision-making in these environments.

Grounded in behavioral economics, this study explores how cognitive biases—specifically optimism bias, loss aversion, and sunk cost fallacy—shape decision-making under conditions of uncertainty, complexity, and organizational pressure. Drawing on a practice-based case study of the City of Atlanta, the research identifies recurring decision patterns and examines their relevance in large-scale capital program environments.

Findings demonstrate that decision-making distortions are systematic rather than incidental, influencing both the timing and quality of decisions across program phases. The study introduces a Behaviorally Informed Decision Framework that illustrates how bias manifests at key decision points and provides practical mechanisms for improving decision discipline.

This research contributes to engaged management scholarship by bridging behavioral theory and executive practice, offering a transferable framework for improving decision quality and performance outcomes in complex, capital-intensive environments.

1. Introduction

Large-scale capital programs—particularly in infrastructure, aviation, and public sector environments—are characterized by complexity, long time horizons, and significant financial exposure. Despite advancements in project management methodologies, forecasting tools, and governance structures, these programs continue to experience persistent challenges in cost, schedule, and performance outcomes.

Traditional explanations for underperformance focus on scope changes, planning deficiencies, and technical execution risks. While relevant, these explanations do not fully account for the

consistency with which performance challenges occur across different organizations and program types.

This study argues that decision-making itself—specifically the behavioral dynamics influencing those decisions—is a primary but underexamined driver of program outcomes.

In high-stakes environments, decisions are made under uncertainty, incomplete information, and sustained stakeholder pressure. Under these conditions, cognitive biases influence not only what decisions are made, but when and how they are made. These distortions can lead to overly optimistic projections, delayed corrective action, and continued investment in underperforming initiatives.

As a result, a persistent gap emerges between intended strategy and actual performance outcomes.

2. Research Question

Primary Research Question:

How do behavioral biases influence decision-making in large-scale capital programs, and how do these influences affect performance outcomes?

Supporting Focus:

- When do specific biases most strongly influence decisions?
- How do biases affect decision timing and escalation?
- What patterns emerge across decision phases?

3. Theoretical Foundation

This research is grounded in behavioral economics, focusing on how cognitive biases influence decision-making under uncertainty.

Key Biases Examined

Optimism Bias

A systematic tendency to overestimate favorable outcomes while underestimating cost, time, and risk.

Loss Aversion

A preference for avoiding losses over achieving gains, often resulting in delayed recognition of negative outcomes.

Sunk Cost Fallacy

The tendency to continue investing in a decision based on prior commitments rather than future value.

Positioning of This Study

This study extends behavioral economics into complex organizational environments by examining how these biases operate across the lifecycle of large-scale capital programs. Rather than treating bias as an isolated cognitive phenomenon, the research focuses on how bias shapes decision processes, timing, and outcomes in real-world execution environments.

4. Methodology

This study adopts a practice-based, qualitative approach aligned with engaged scholarship, focusing on decision-making behavior within complex organizational systems.

Empirical Foundation

The City of Atlanta case study serves as the empirical basis for examining decision-making behavior in a high-stakes public sector environment characterized by financial complexity, operational demands, and stakeholder scrutiny.

Methodological Positioning

The City of Atlanta case study served as the empirical foundation for identifying behavioral patterns in decision-making under conditions of complexity, uncertainty, and significant financial exposure. Rather than treating the case as context-specific, this study extracts recurring decision dynamics—particularly the manifestation of optimism bias, loss aversion, and sunk cost fallacy—and examines their relevance in structurally similar organizational environments.

The extension of these findings to large-scale capital programs is based on analytical transferability rather than statistical generalization. Both municipal financial management and capital program delivery involve high-stakes decisions, long-term commitments, and sustained stakeholder scrutiny. These shared conditions create comparable decision environments in which behavioral biases influence judgment, timing, and action.

By focusing on decision processes rather than domain-specific characteristics, this approach enables the research to move beyond a single case context while remaining grounded in empirical observation. The result is a practice-based contribution that advances understanding of decision-making behavior in complex organizational settings and provides insight applicable to capital-intensive programs.

Analytical Approach

The analysis focuses on identifying recurring behavioral patterns, mapping bias to decision phases, and evaluating the impact of those decisions on performance outcomes.

5. Findings

5.1 Optimism Bias Distorts Early-Stage Decision-Making

Early-stage projections consistently reflected an overestimation of favorable outcomes and an underestimation of constraints. These assumptions established a baseline that became increasingly difficult to challenge.

In one instance, an early-stage financial projection established an aggressive performance expectation that was not subsequently recalibrated, despite emerging indicators of constraint. The initial assumption became embedded in planning and stakeholder communication, limiting the organization's willingness to adjust expectations as conditions evolved.

Capital Program Application:

Similar dynamics occur during cost estimating, schedule development, and benefit forecasting, where early assumptions become embedded in funding approvals and stakeholder expectations.

5.2 Decision Anchoring Reinforces Initial Assumptions

Once initial decisions were established, they were rarely revisited at a structural level. Adjustments were incremental, while foundational assumptions remained unchanged.

Capital Program Application:

This manifests as adherence to original budgets, resistance to baseline resets, and reliance on incremental adjustments rather than structural reevaluation.

5.3 Loss Aversion Delays Corrective Action

There was a consistent reluctance to escalate issues early, often driven by concern over reputational impact and preference for recovery over acknowledgment.

In a representative case, performance indicators signaled emerging variance well before formal escalation occurred. However, corrective action was delayed in favor of internal recovery efforts, reducing the range of viable intervention options and increasing the eventual cost of correction.

Capital Program Application:

This leads to delayed recognition of overruns and compounding downstream impacts.

5.4 Sunk Cost Fallacy Drives Continued Investment

As commitments increased, decisions were increasingly influenced by prior investment rather than future value.

In another instance, continued resource allocation was justified based on prior investment and visibility rather than forward-looking value. Decision framing emphasized preserving earlier commitments, resulting in further escalation.

Capital Program Application:

This results in continued funding of underperforming initiatives and reluctance to restructure or terminate.

5.5 Bias Compounds Across Decision Phases

Biases operate cumulatively:

1. Optimism bias sets direction
2. Anchoring reinforces assumptions
3. Loss aversion delays correction
4. Sunk cost fallacy locks continuation

These examples illustrate that behavioral bias does not occur as isolated events, but as recurring and reinforcing patterns embedded within organizational decision processes.

6. Behaviorally Informed Decision Framework

This study introduces a framework illustrating how behavioral biases manifest across decision phases in capital programs.

Core Insight:

Decision quality is not constrained by information alone, but by how that information is interpreted through behavioral bias.

The framework maps:

- decision phases
- dominant biases

- resulting impacts

and identifies intervention points to improve decision discipline.

7. Practical Implications

For Leaders

- Recognize bias as predictable and systemic
- Introduce structured reassessment points
- Separate past investment from future decisions
- Encourage early escalation

For Organizations

- Improve decision timing
- Reduce escalation of failing initiatives
- Strengthen alignment between strategy and execution

8. Contribution

To Theory

Extends behavioral economics into capital program environments and identifies patterned bias across decision phases.

To Practice

Provides a usable framework for improving decision-making in complex, capital-intensive settings.

To Engaged Scholarship

Bridges research and practice by addressing a real-world problem with actionable, transferable insight.

Conclusion

Persistent underperformance in large-scale capital programs cannot be fully explained by technical or structural factors alone. This study demonstrates that behavioral biases systematically influence decision-making across program phases, shaping both the timing and quality of decisions.

By identifying these patterns and introducing a behaviorally informed framework, this research provides a pathway for improving decision discipline and organizational performance.

Improving outcomes in complex programs requires not only better tools—but better decisions.