



# NAC Executive Insights

## Barriers to Productivity – An Overview

### Key Points

- Productivity remains a significant industry challenge.
- Barriers to productivity from an executive and management perspective are provided. For example, weak safety culture and inadequate stakeholder management can be huge disruptors.
- Identified barriers are not exhaustive and should be complemented by field-level perspectives.

### Introduction

This Executive Insight provides a view on some of the barriers to productivity that exist, especially in large complex projects. More granular, field-level viewpoints, on productivity are equally important, but are not covered here. The listing that follows is most certainly not complete, but reflects the author's experiences.

### Barriers to Productivity

The construction industry has suffered from a productivity gap for decades. Many of the newer construction delivery systems, such as lean construction, seek to address this productivity gap. Despite successes, broad industry scale improvements are lacking. Failure to achieve planned productivity levels on a sustained basis is one of the challenges many large complex projects face and potential challenges to productivity must be addressed earlier in the project life cycle.

Some barriers to productivity include:

- Expanding “soft” project requirements such as environmental, social, and subcontracting policies.
- Inadequate valuing of time:
  - Decision making has no sense of urgency.
  - Responsibility and accountability are “diffused.”
- Serial specialization acts as a barrier to systemic innovation—projects split into smaller pieces or phases for control actually limit opportunities for broader innovation.
  - No competition of supply chains (as contrasted with other manufacturing industries).
  - No ability for multiple industry players to change in unison.
- Complexity leads to new risks:
  - White space – compounded by serial specialization.
  - Black swans – nest and breed in white spaces and in complexity
  - Coupled constraints

- Challenges the perceptions on scaling factors—does a bigger project become more expensive than two smaller ones when complexity increases above a threshold level?
- Disaggregation of toolmaking from tool users limits ability to optimize project level productivity.
- Owner and owner’s project requirements drive engineering solutions, not construction solutions.
  - An expanded basis of design is required.
  - Constructability addresses issues too late and only at the margins.
  - Quality of design (completeness) requires improvement.
- Means and methods capture and sharing is weak and does not compensate for assembling a “company” to do a project, only to take it apart at the end of the project.
- Manufacturing methods (such as what fabrication may afford) are too narrowly applied.
  - Lack of adequate component and tool standardizations.
- Supply chain practices reflect dated thinking and methods.
  - Deficient source material or manufacturing fabrication quality
  - Lack of materials at the times required
  - Inadequate tracking and storage of materials at site impacts efficient retrieval.
- Strengthening and reinforcing construction supervision skills, practices, tools, and technology recognize the half-life of information.
- Decision-making frameworks do not adequately value time.
  - Impacted by inadequate alignment at all project levels.
  - Inadequate leadership skills and training
- Inadequate stakeholder engagement results in project disruption.
- Routine disruption or gaps in workflow not adequately anticipated.
  - Contingent activities not planned.
  - Waiting time not productively used—safety or skills training; work area cleanup; tool maintenance or sharpening; inspection of completed works; and workface planning
- Incomplete workface planning.
- Inadequate safety culture.
  - Pre-planning; mindfulness; and team-based communications needed.
- Retrospective vs. prospective metrics:
  - Earned value not complemented with earned schedule.
  - Productivity only tracked at project-wide aggregate levels. Often insufficient granular detail is obtained from the subcontractors when the selection is made to enable the CM or GC to track productivity on a subcontractor-by-subcontractor basis in each phase or area. This requires forethought by the procurement manager to demand the requisite information to make informed decisions on who is the best subcontractor for a project. The seeds of inadequate productivity are sown long before the physical evidence indicates there is a problem.

## Summary

Several areas to be addressed to improve construction project productivity have been enumerated. These largely come from an executive perspective and should be complemented with field-level insights and recommendations.

## **For Further Reading**

Executive Insight, Improving Large Project Delivery  
Executive Insight, White Space Risks  
Executive Insight, Black Swan Risks  
Executive Insight, Coupling in Large Complex Projects  
Executive Insight, Business Basis of Design  
Executive Insight, Constructability Review Before Design Commences  
Executive Insight, Know What You Are Trying to Accomplish: The Primacy of the Scope Baseline  
Executive Insight, Design Review  
Executive Insight, Modularization  
Executive Insight, Nuts and Bolts of Engineering and Construction  
Executive Insight, Procurement Management in Large Complex Projects  
Executive Insight, Rethinking the Construction Education System  
Executive Insight, Importance of Strategic Business Objectives  
Executive Insight, Stakeholder Management in Large Complex Projects  
Executive Insight, Contingent Execution

## **About the Author**

Bob Prieto was elected to the National Academy of Construction in 2011. He is a senior executive who is effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering, and construction industries.

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