



# NAC Executive Insights

## Opportunity Analysis

### Key Points

- While detailed risk analysis and management tools exist, no broadly accepted opportunity analysis framework exists within the engineering and construction industry.
- One framework is suggested that considers four broad categories of opportunities: finance, process, projects, and stakeholders. These categories are further divided into 10 sub-categories.
- Capturing opportunities can lead to value creation on large programs and projects.

### Opportunity Analysis

Large complex projects are about meeting the challenges of scale and complexity, but also about capturing the opportunities of leverage. Every major program, as well as the projects within the program, are subject to a detailed and rigorous risk analysis. To capture the full value inherent in large programs, the team should also identify *opportunities* within the program and projects in a proactive and ongoing manner.

The opportunity analysis framework described in this Executive Insight provides a comprehensive approach. Unlike various risk frameworks and categorizations that exist, there is no comparable opportunity framework in the engineering and construction industry. This Executive Insight presents a framework that draws on the “*Ten Types of Innovation*” by Doblin Research along with a checklist to facilitate opportunity assessment in large engineering and construction programs.

### Program Management Opportunity Framework

The Program Management Opportunity Framework is focused on those parameters related to opportunities in large engineering and construction programs. In this Program Management Opportunity Framework, four broad categories of opportunities are considered:

1. Finance
2. Processes
3. Projects
4. Stakeholders

Finance		Processes		Projects			Stakeholders		
Business Model	Networking	Enabling Process	Core Process	Program Performance	Program System	Program Teamwork	Outreach	Communication	Stakeholder Experience
How to fund the program and individual projects; maximize return on investment	Optimizing the value chain	Streamlining owner driven processes	Applying proprietary PMC processes and intellectual property	Implementing PMC value improving practices	Adopting life cycle services framework	Adopting strong alignment and partnering approaches	How stakeholders are engaged	How program benefits are communicated to stakeholders	How positive stakeholder experience is achieved



Within these broad categories, a total of 10 sub-areas are described. These sub-areas and principle area of interest include:

1. **Business Model** – How to fund the program and individual projects; maximize return on investment
2. **Networking** – Optimizing the value chain
3. **Enabling Process** – Streamlining owner-driven processes
4. **Core Process** – Applying proprietary program management contracting (PMC) processes and intellectual property
5. **Program Performance** – Implementing PMC value improving practices
6. **Program System** – Adopting life-cycle services framework
7. **Program Teamwork** – Adopting strong alignment and partnering approaches
8. **Outreach** – How stakeholders are engaged
9. **Communication** – How program benefits are communicated to stakeholders
10. **Stakeholder Experience** – How positive stakeholder experience is achieved

## An Opportunity Checklist

The opportunity checklist for any specific large-scale engineering and construction program will be governed by:

- Nature of program and its individual projects
- Client related constraints
- Site constraints
- Market constraints
- Supply chain and logistical constraints
- Governmental, regulatory, and stakeholder constraints
- Additional program specific constraints

The checklist which follows is suggestive of the breadth of opportunities which may exist in large capital programs. While important opportunities do exist in the “nuts and bolts” of large engineering and construction programs, valuable opportunities can also be extracted from modifications to the business models or how stakeholder expectations are met.

As you apply this framework and opportunity checklist to your program/projects, the team can make an assessment of the applicability and likelihood of an opportunity being realized. This allows the team to prioritize the opportunities. In some cases, an investment may be required to fully benefit from an opportunity, thus a return on investment (ROI) analysis may be warranted.

## Opportunity Checklist

### **1. Business Model – How to fund the program and individual projects; maximize return on investment**

- Are there elements of the program or individual projects for which attractive vendor financing is available?
- Are there elements of the program or individual projects which should be acquired on other than a purchase basis (e.g., DBOM; PPP; delivered service)?
- What is the optimal phasing of the program when considering phase-based revenues and costs?
- Are their program or individual project structuring opportunities that improve the project’s tax efficiency?
- Are there risk categories that can be pooled and self-insured?
- Are there changes in the owner’s business model or the Program Management Contractor (PMC) delivery model which are desirable based on program considerations?
- Do commodity or risk arbitrage opportunities exist?
- Do opportunities exist for favorable regulatory change?

### **2. Networking – Optimizing the value chain**

- Which elements of supply lend themselves to consolidated purchasing?
- Which elements of supply should be considered as part of a broader multi-project procurement strategy?
- Is the scope of the program or individual projects to be developed by the owner optimal or are there elements to be added or subtracted that can produce improved value?
- Are their potential alliance agreements that should be considered that create value for both parties?
- Has potential value in waste or by-product streams been fully captured?
- What co-development opportunities exist with projects being undertaken by others?
- Does reorganization of the supply chain provide added value or risk transfer?

### **3. Enabling Process – Streamlining owner-driven processes**

- Are there owner tollgate processes that can be accelerated through interim reviews?
- Are there opportunities to embed owner staff with change authority into site management teams for routine type changes?
- Are there opportunities to modify contingency pool policies to provide both the owner’s and PMC’s project teams with increased flexibility?
- Are there elements of procurement and contracting that can be better undertaken directly by the PMC versus the owner’s typical procurement approach?

- Are their opportunities to accelerate cash flow to contractors and suppliers through a modified invoice payment process (only exceptions not paid)?
- Can staff approval processes be streamlined for in-budget staff positions within approved ranges?

#### **4. Core Process – Applying proprietary PMC processes and intellectual property**

- Are required intellectual property agreements in place in a form that maximizes the opportunity to use proprietary PMC processes and intellectual property?
- Is the use of PMC's integrated framework anticipated without any defaults to client preference systems?
- Is there the potential to use PMC strategic supplier relationship agreements?
- Is an external version of PMC's risk framework utilized?

#### **5. Program Performance – Implementing PMC value improving practices**

- Have the most appropriate value improving practices and their timing to be used on the program been identified?
- Are there technology options that should currently be considered?
- Are the classes of quality for each portion of the program or individual projects consistent with its intended use and associated risks?
- Are there opportunities for prefabrication, preassembly, and modularization that improve labor productivity and reduce costs?
- Has standardization been considered from a full life-cycle perspective (procurement and construction simplification; reduced SKUs for spares)?
- Are there opportunities to use lower cost engineering centers for an increased portion of the program?
- Have opportunities to minimize construction waste been adequately considered (recyclable packaging materials; onsite reuse of select waste streams; reduced number of SKUs in supply chain)?
- Are strategies for reducing energy use during construction in place (consolidated shipments to the site; renewable energy to meet onsite construction power needs; use of micro grids)?
- Are strategies for minimizing potable water use during construction in place?
- Have water "barter" arrangements been considered to reduce limits on well pumping rates?
- Have design margins been optimized?
- What opportunities for energy and water optimization during operations exist?
- Can productivity be enhanced through training, tools, or other workforce changes?

#### **6. Program System – Adopting life-cycle services framework**

- Are there opportunities to streamline start-up and commissioning (including pre-commissioning of elements of the project)?
- Have operations and maintenance (O&M) needs been addressed in project design?
- Have O&M needs with respect to consumables and spares been addressed in initial project procurement?
- Is it desirable for the PMC to provide an initial or ongoing maintenance activity for all or part of the project?
- Does the approach to design, procurement, and construction result in an asset management database suitable for plant operations and maintenance?

#### **7. Program Teamwork – Adopting strong alignment and partnering approaches**

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- Have alignment activities been carried out comprehensively across owner, PMC, and all stakeholder organizations?
  - Are regular partnering sessions continued throughout the program duration?

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**8. Outreach – How stakeholders are engaged**

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- Have stakeholder management plans been developed and do they reflect the preferred method each stakeholder desires to engage through?
- Are we monitoring and assessing stakeholder engagement and providing feedback to stakeholders on their engagement?

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**9. Communication – How program benefits are communicated to stakeholders**

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- Are the most cost-effective communication techniques being used to reach each stakeholder with appropriately targeted messages?
- How can effectiveness be measured most accurately?

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**10. Stakeholder Experience – How positive stakeholder experience is achieved**

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- Has each stakeholder's definition of success been solicited, measured, and communicated with regard to the program's movement towards that goal?
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### **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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