



NAC Executive Insights

Giga Program Manager's Checklist

Key Points

- Program management requires a broader focus than just project management.
- Giga programs introduce challenges and opportunities beyond those faced even in megaprojects.
- A changed perspective is one key dimension required for successful program management of giga programs.

Introduction

Program management is about managing the challenges of scale and complexity. It is also about capturing the opportunities of leverage. In the engineering and construction sector, program management begins in front end engineering and design (FEED) and continues through the engineering and construction phase.

Large programs in the engineering and construction industry comprise a multiplicity of projects that together create scale challenges in engineering, procurement, construction, and logistics which may dwarf even the largest single project. Such a program is the norm when it comes to giga projects. A giga project can be defined as a large-scale megaproject with dramatically increased complexity and often increased durations. Often considered as those projects in excess of \$10 billion, giga projects typically encompass a number of megaprojects that comprise the overall project and program.

Program management requires a broader, more strategic focus than project management and a tighter integration across all elements of the execution process. The following are a few of the activities that the program manager must pay particular attention to. These should be viewed as supplementing or amplifying more traditional good project management practices.

The checklist that follows is compiled from *The GIGA Factor: Program Management in the Engineering & Construction Industry*, written by the author of this Executive Insight and published by the Construction Management Association of America (CMAA).

Program Management Perspective

1. Ensure the owner's organization and PMC (program management consultant or contractor) team have a true program management perspective.
 - a. Is their program management perspective holistic?
 - b. Does their program management perspective consider the full lifecycle?

2. Does project selection support the defined strategic business objectives (SBOs) that the owner has articulated?
 - a. Is each project, its phasing, and its features absolutely required to meet strategic business objectives? If not, seek clarification, resolution, and alignment between owner and PMC organizations.
3. Are the owner's SBOs well defined, communicated, and reinforced?
 - a. If key owner and PMC managers are asked to describe the SBOs, will they know what they are? Are they aligned?
4. Have top level key performance indicators (KPIs) been put in place that allow measurement of strategic business objectives and desired outcomes?
5. Is the owner's organization, including executive (board and C-suite) and supporting functions (legal, procurement), aligned with the strategic business objectives and the selected strategy?
6. Have key stakeholders been identified and liaison efforts adequately progressed at program initiation?

Program Governance

7. Does the collective execution team understand the differences between program and project management and how their roles shift under program management?
8. Is the concept of "white space" clearly understood and have organizational elements and processes provided for its continued understanding and exploration?
9. Have traditional alignment efforts been broadened to account for this more holistic and life-cycle perspective that programs require as well as ensuring alignment around strategic business objectives, execution strategy, and changed organizational roles?
10. Are the owner's perspectives and drivers well understood by the program team and have they been comprehensively communicated to all program and project participants?
11. Have oversight organizations within the owner organization been comprehensively and clearly identified and are they included in alignment processes?
12. Has the gated execution process been well developed and expectations at each stage gate assessed and agreed to between the PMC, the owner, and other key stakeholders?
13. Are processes in place to adequately identify risks and opportunities that either exist within the "white space" between projects or are cross-cutting or multi-project in nature?
14. Have areas that may lend themselves to a PMC⁺ (management plus some elements of execution) vs a traditional PMC (no elements of execution) approach been identified and reviewed with the client?
15. Are the program management roles in stakeholder management clearly defined and are all program level stakeholders adequately addressed? Is there clarity in contractor roles in stakeholder management? Are clear messages defined across the program?
16. Is a formal organizational change management process in place and accepted by the various program participants?
17. Have key focus areas and challenges experienced in a program management approach been reviewed collectively with the owner?
18. Has a common program problem checklist been reviewed?

19. Has adequate attention to governance structures occurred and are governance relationships well understood and agreed to?
20. Does the program approach incorporate the key success factors for program management?
21. Are strategy and governance mutually reinforcing?
22. Is the need for change, in all dimensions, recognized and agreed to? Are the requisite commitments and resources in place?
23. Do the selected project execution framework processes comprehensively address the programs likely set of needs? Are the management and project execution systems agreed to and accepted?
24. Are metrics related to the various elements of strategic program management in place and are they being effectively used?
25. Have cultural factors and their role in organizational transformation been fully taken into account?
26. Are required changes that are necessary for organizational transformation and their rationale clearly communicated and explained?
27. Is the owner's primary executive sponsor sufficiently and meaningfully engaged? Is there a shared understanding of the keys to success with this individual?
28. Is the program team professionally and emotionally engaged and does it understand what success looks like?
29. Have "change-agents" to drive organizational transformation been clearly identified, roles well thought out, and clearly communicated?
30. Have potential barriers to change been reviewed with the program team and "change-agents" and strategies developed to address them if they emerge?
31. Is the change management plan fully integrated into the overall program plan?
32. Has the program governance regime been clearly defined and the necessary alignment activities undertaken between owner and program management staff? Do accountabilities, responsibilities, authorities, and program policies and processes reinforce the agreed-to governance regime?
33. Have key success factors in program governance been reviewed as part of alignment activities?

Program Initiation

34. Is the project selection process robust? Has it occurred considering all the strategic business objectives?
35. Are potential biases in the project selection process understood and the impacts of those biases tested?
36. Have project priorities, sequencing, and effects of interdependencies and synergies been identified?
37. Have critical controls been identified and put in place?
38. Are all of the core elements of strategic program management present and the key questions that they focus on adequately addressed?
39. Does the selected strategy reflect consideration and achievement of all of the program's strategic business objectives?

40. Are external stakeholder and resource constraints well understood and their impact on strategy selection well understood? Do mechanisms exist to monitor these constraints for any changed impacts and strategic flexibility that may result?

Program Execution

41. Has standardized program-wide program and safety orientation been put firmly in place to help build the program's safety culture among labor new to the site?
42. Do owner and PMC team members understand the broader leadership role and not just the role of management that is required of them in implementing a large-scale program? Have the precepts of leadership been communicated and adequately reinforced?
43. Have functional organization requirements been clearly identified and agreed to with the owner? Is there a shared understanding of how this organization will change over the life of the program?
44. Does the selected functional organization provide adequate coverage of all the potential "white spaces" that exist between the projects comprising the program?
45. Has any potential PMC+ role been thoroughly reviewed, agreed to, and clearly defined?
46. Are the roles and responsibilities of the various functional elements clearly spelled out with respect to their interaction with various program contractors? Have program contractors been clearly informed of the nature and extent of their interaction with the various PMC functional organizations and are these expectations captured in program or contractual governing documents?
47. Are functional organizations attuned to processes that may result in layering of contingencies, for example, resulting in over designed systems, structures and components or estimates with contingencies at component, system, and area levels?
48. Are value improvement processes being implemented early in the program and then revisited when the program moves into subsequent phases or when there major changes in the program?
49. For changes recommended for incorporation after the change review and approval processes are complete, is the program asking as to "when" to incorporate the change?
50. Have strategic sourcing strategies been comprehensively considered at the project selection stage and the impacts on contracting strategies been fully recognized?
51. Is the material management organization consistent with the selected sourcing strategy, including use of higher levels of client furnished materials (CFM)?
52. Has the *full range* of programmatic means and methods been thought through prior to finalizing the program's contracting strategy?
53. Has sufficient focus been paid to the "nuts and bolts" of engineering and construction to ensure efficiency and cost effectiveness have been adequately considered?
54. Are the owner and the PMC fully aligned on risk allocation, management approach, sharing of contingency and its management, and insurance programs required to address gaps?
55. Have lessons learned and best practices from other comparable scale and complexity programs been reviewed?
56. Is a construction-driven execution approach evident in all program processes?

Program Management Oversight (PMO)

57. Are the roles of the PMO (Program Management Office or Oversight) and PMC clearly defined and understood by the balance of the owner organization? Is the PMO adequately staffed and skilled to support the overall program?
58. Do all PMC work processes reflect required reviews, reports, audits, and/or approvals required by the PMO?
59. Is the gated process well-defined in terms of required information and scope of each stage? Are gate processes designed for efficient reviews and approvals? Have the PMC activity plans been developed to ensure the foundations for subsequent phases are firmly in place before required approvals to move forward have been given?
60. Is the PMO organization appropriate for the number of programs it is overseeing on behalf of the owner?
61. Is the project audit process well-defined and being used for effect?
62. Are programmatic type audits being effectively conducted by the program team?
63. Are self-audits of program performance from a PMO perspective being carried out by the program team in advance of an actual PMO audit?
64. Are program dashboards being used effectively to status overall program strategic progress as well as progress of the individual projects? Is there a shared view of the state of the program by the PMO and the PMC?
65. Are program dashboards being used to convey program status to key stakeholders?

Risks and Opportunities

66. Does the developed safety program sufficiently consider cross-cutting risks and transient activities?
67. Have the owner and PMC team been sufficiently sensitized to the direct and indirect impacts of a safety or loss incident?
68. Have the top reasons for failures in other comparable programs been reviewed and efforts undertaken to inoculate the program against these risks of failure?
69. Are risk management strategies that have been identified as part of the risk assessment process being implemented and their effectiveness tracked?
70. Are a full range of risk assessment techniques being used, recognizing that each has limitations?
71. Are risk assumptions and program constraints being tracked over time to ensure continuing validity of program risk strategies and assessments?
72. Have potential correlated risks, including emerging risks, been sufficiently identified? Are risk precursors as well as the risks themselves being tracked?
73. Have sources of complexity in large engineering and construction programs been carefully considered? Have program approaches and strategies been simplified where possible to reduce or expose potential risks hidden in complexity?
74. Have the dynamic forces impacting risks and risk assessment in long duration engineering and construction programs been considered? Have appropriate risk phases been established to ensure risks are not averaged out through selection of long or total program timeframes?

75. Have scenarios been used to test the resilience of program strategy? Have they explicitly considered emerging trends that the industry or region is facing?
76. Has due consideration been given to the early detection of risk or risk precursors?
77. Are constraint-coupled risks identified and the associated coupling constraint tracked?
78. Are trust-influencing factors monitored for level and trend? Do program strategies, processes, and people reinforce trust-building behaviors?
79. Have internal and external systemic risk categories been reviewed by the program team? Are periodic reviews of these systemic risks undertaken?
80. Have candidate strategies to reduce program risk in a large engineering and construction program been developed and the most appropriate strategies selected?
81. Has a structured approach to opportunity identification been undertaken and potential opportunities identified? Have requisite efforts been put in place to capitalize on the identified opportunities?

Sustainability

82. Has a programmatic approach to safety and sustainability been adopted by the program team?
83. Has a holistic life-cycle approach (CAPEX and OPEX phases) to sustainability been adopted or are efforts more narrowly focused on the CAPEX phase?
84. Are metrics established with respect to sustainability that will drive and reinforce the practices and results being sought?
85. Is the program enhancing its social license to operate? Is there a documented plan?
86. Have all waste streams and the activities of all projects to minimize waste and impacts on a programmatic basis been carefully reviewed? Are waste treatment strategies endorsed by governing authorities?
87. What special attention has been given to minimizing energy and water usage both during construction and in subsequent operations?
88. Are labor force capacity-building programs providing the skills needed post-CAPEX?
89. Is strong owner commitment to safety present and felt at all program levels?
90. Have stakeholder management programs been designed to comprehensively identify all stakeholders, understand their needs and potential influence on the program, and how the stakeholders relate to each other?
91. Do stakeholder plans exist with well-defined beginnings, middles, and ends?
92. Is the stakeholder management program increasing “trust” in the program?

Innovation

93. Have opportunities for and barriers to innovation in the program been identified?
94. Is the long life of the program to foster systemic innovation and learning based on the semi-permanent relationships the program creates being taken advantage of?

Reference

Prieto, Bob, *The GIGA Factor: Program Management in the Engineering & Construction Industry*, Construction Management Association of America; ISBN 978-1-938014-99-4; 2011.

Suggested Reading

1. NAC Executive Insight: Opportunity Analysis
2. NAC Executive Insight: Owners' Program Management Contracting "Rules of the Road"
3. NAC Executive Insight: Stakeholder Management in Large Complex Programs
4. NAC Executive Insight: "White Space" Risk
5. NAC Executive Insight: Leadership—Challenge, Opportunity, Imperative
6. NAC Executive Insight: Program Based Engineering/Construction Organization
7. NAC Executive Insight: Business Basis of Design
8. NAC Executive Insight: Procurement Management in Large Complex Programs
9. NAC Executive Insight: Nuts and Bolts of Engineering and Construction
10. NAC Executive Insight: Managing Risks in Large Complex Programs
11. NAC Executive Insight: Safety by Design Suggestions
12. NAC Executive Insight: Addressing Emerging Risks
13. NAC Executive Insight: Assumption, Risk Drivers, and Constraint Tracking
14. NAC Executive Insight: Coupling in Large Complex Projects
15. NAC Executive Insight: Systemic Risks in Large Complex Programs
16. NAC Executive Insight: Opportunity Analysis
17. NAC Executive Insight: Stakeholder Management in Large Complex Programs

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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