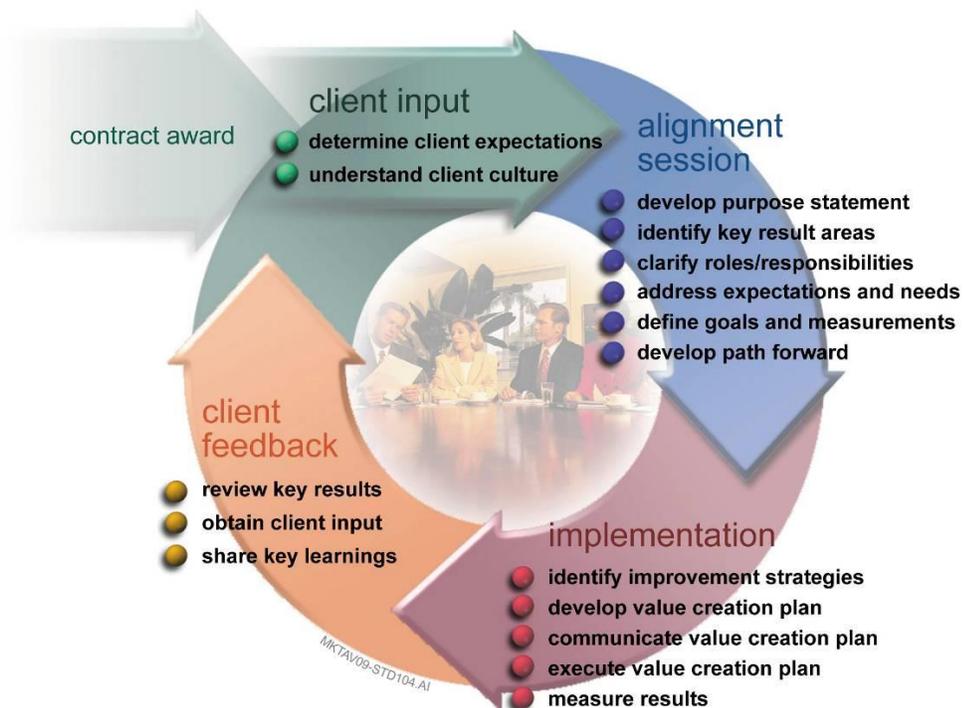


Continuous Alignment in Engineering & Construction Programs Utilizing a Program Management Approach^{1, 2}

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Alignment of project participants, especially during the pre-project planning phase is a recognized key to project success.¹ Alignment activities within a project context are focused on defining, understanding and meeting project objectives by the various project participants.



¹ Second Editions are previously published papers that have continued relevance in today's project management world, or which were originally published in conference proceedings or in a language other than English. Original publication acknowledged; authors retain copyright. This paper was originally published in *PM World Today* in April 2011. It is republished here with the author's permission.

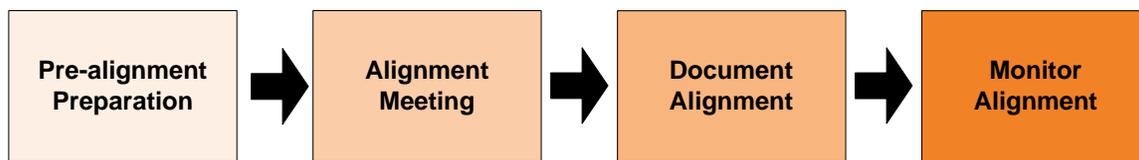
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Within a program context the same raison d'être exists but with even greater influence on overall program success and with a broader scope of participants and alignment vectors. This expanded context for alignment in programs utilizing a program management approach is described.

At each stage, the basic alignment process is the same:

- Pre-alignment preparation
- Alignment meeting
- Document alignment
- Monitor alignment

This process is reflected in the following figure and one or more alignment processes may be undertaken at each stage in order to address specific items in more depth. Examples of alignment activities requiring separate sessions from the main alignment activity include alignment processes focused on automation alignment; invoice process, procedure and associated documentation; and industrial relations.



Alignment Activities

Major programs face challenges of scale and complexity but fundamentally are about the achievement of a set of well-defined strategic business objectives. These strategic business objectives or SBOs represent the most fundamental outcomes to be achieved through the implementation of a major program. This *outcomes* focus versus *outputs* focus represents a principle difference between programs and projects and by extension the nature, timing and parties involved in alignment activities changes to reflect this difference.

As we move through this paper, we will see the more typical project level alignment processes with their focus on project objectives (*outputs*). Programs, however, require much earlier alignment activities to be undertaken around an organization's Strategic Business Objectives or SBOs to be achieved by undertaking a major program.

Strategic Business Objectives represent the fundamental business drivers in a well-executed program. But not all programs are well executed and as such understanding how

the selection and translation of strategic business objectives into program strategy and execution affects program performance and outcomes is essential.

Equally essential is to assure top level alignment on a program's strategic business objectives. Lack of consensus often acts as a passive drag on many programs. A review of large engineering and construction program experiencing scope, schedule and cost growth suggests that both articulation of the businesses strategic business objectives and broad stakeholder consensus were lacking. Simply put, strategy was flawed and organizational alignment inadequate since there was not agreement on the fundamental strategic business objectives to be achieved.

This needed alignment around Strategic Business Objectives must begin with not only executive alignment but equally important peer alignment since this later group's roles, responsibilities or authorities may be modified under a program management approach.

Strategic Business Objectives for a private, for profit company can include:

- Return on Capital Employed (ROCE)
- Market share
- Satisfy a market need by providing a service
- Targeted growth rates

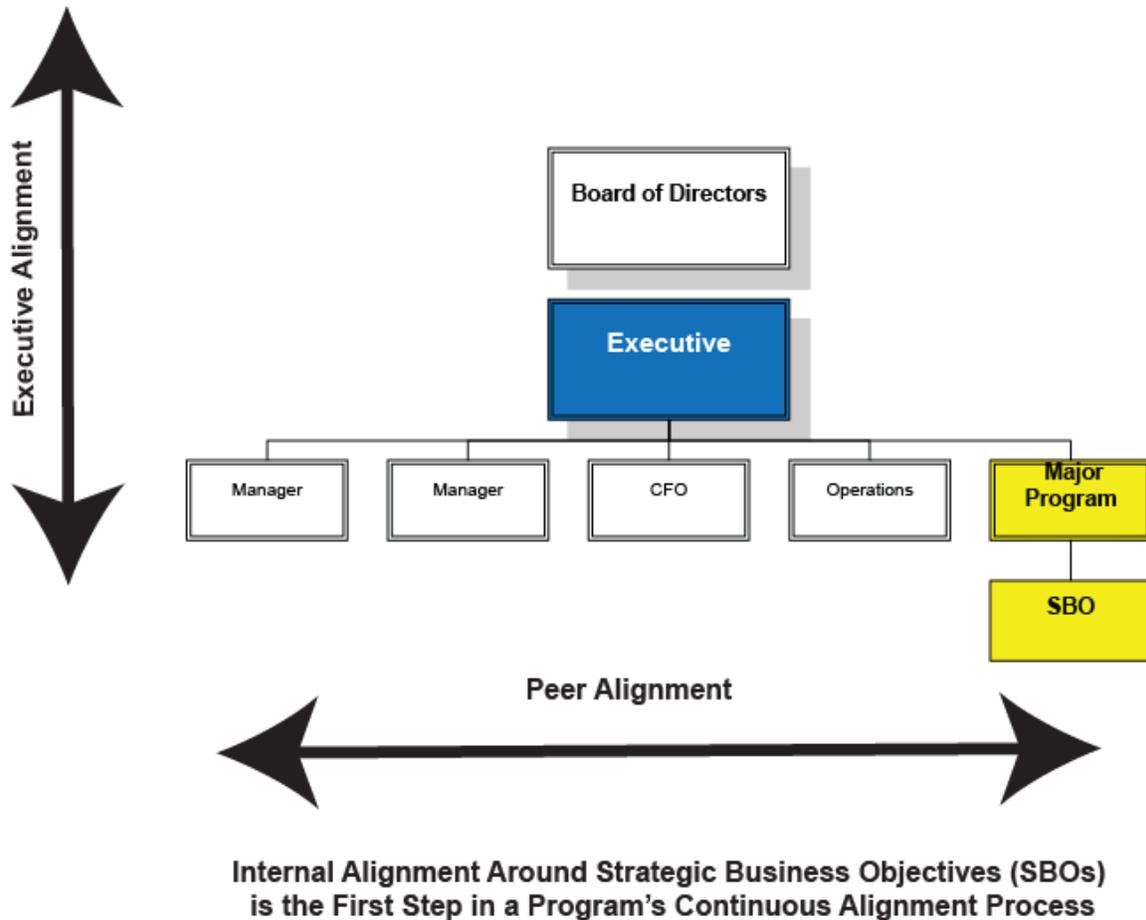
or a number of other quantifiable and measurable objectives. These strategic business objectives may also include other top level objectives that define the business rationale or approach such as:

- Patents granted
- New products launched
- Net zero carbon or other triple bottom line (TBL) objectives

For public sector owners, strategic business objectives will include more social and environmental objectives including:

- Improved access to transportation
- Reduced congestion
- Improved access to clean water
- New jobs created
- New industries created

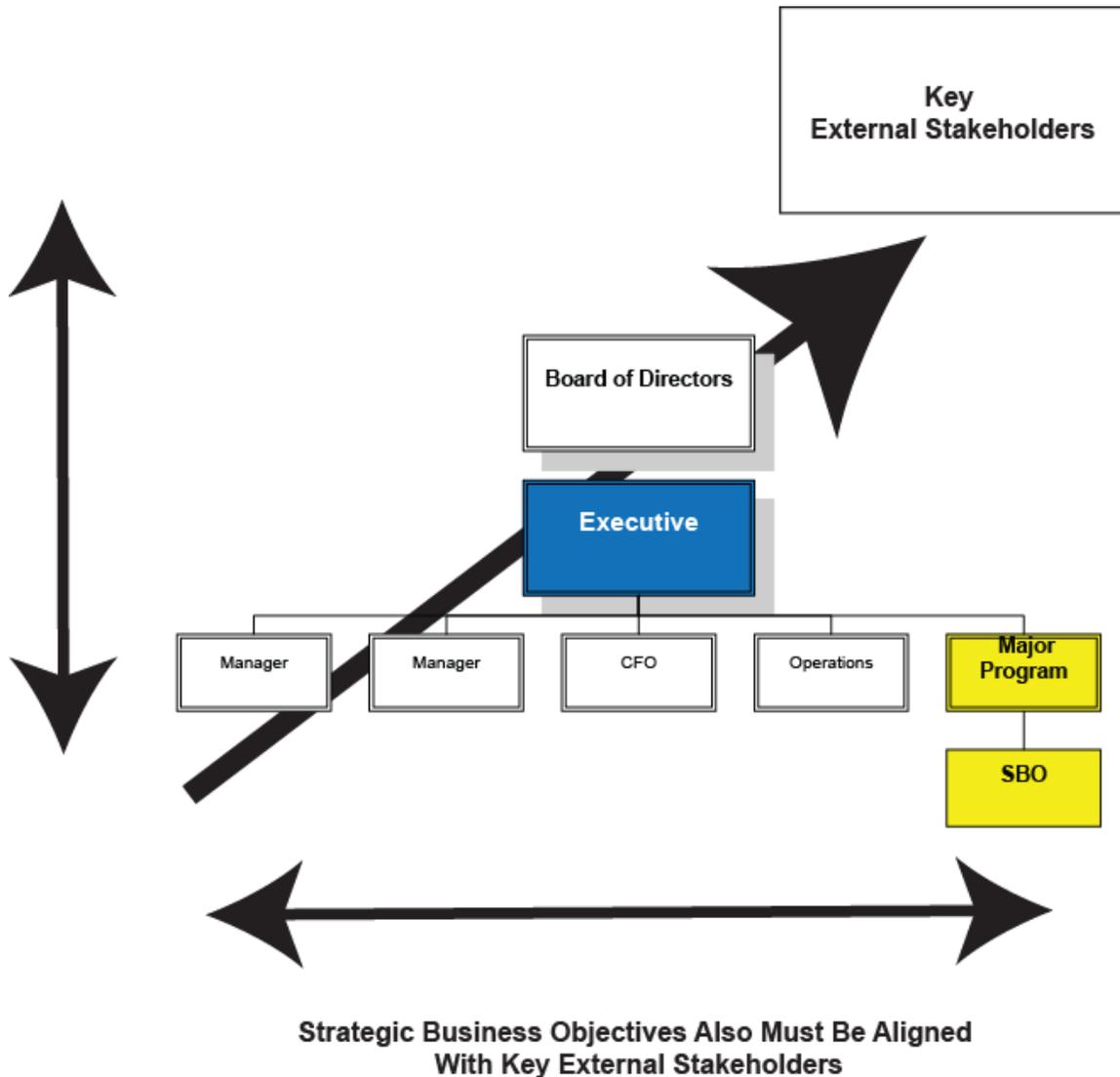
While the nature and form of the investment decision process will differ, each type of owner will undertake a process that will define one or more programs to achieve these overarching strategic business objectives while cascading elements of the SBOs down as top level key result areas (KRAs) of individual projects.



Alignment in major programs around Strategic Business Objectives is not confined to internal stakeholders even though these objectives represent organizational goals. Key external stakeholders will need to be engaged to ensure that these top level SBOs are achievable. Examples of key external stakeholders can include:

- Major investors including founding shareholders, large institutional investors, pension funds
- Bond holders
- Institutional lenders or others who will provide capital to achieve the program's objectives
- Executive Branch leadership for governmental programs
- Legislature, in general, and appropriating committees, in particular, for government funded or subsidized projects
- Regulatory authorities for objectives requiring significant regulatory support.

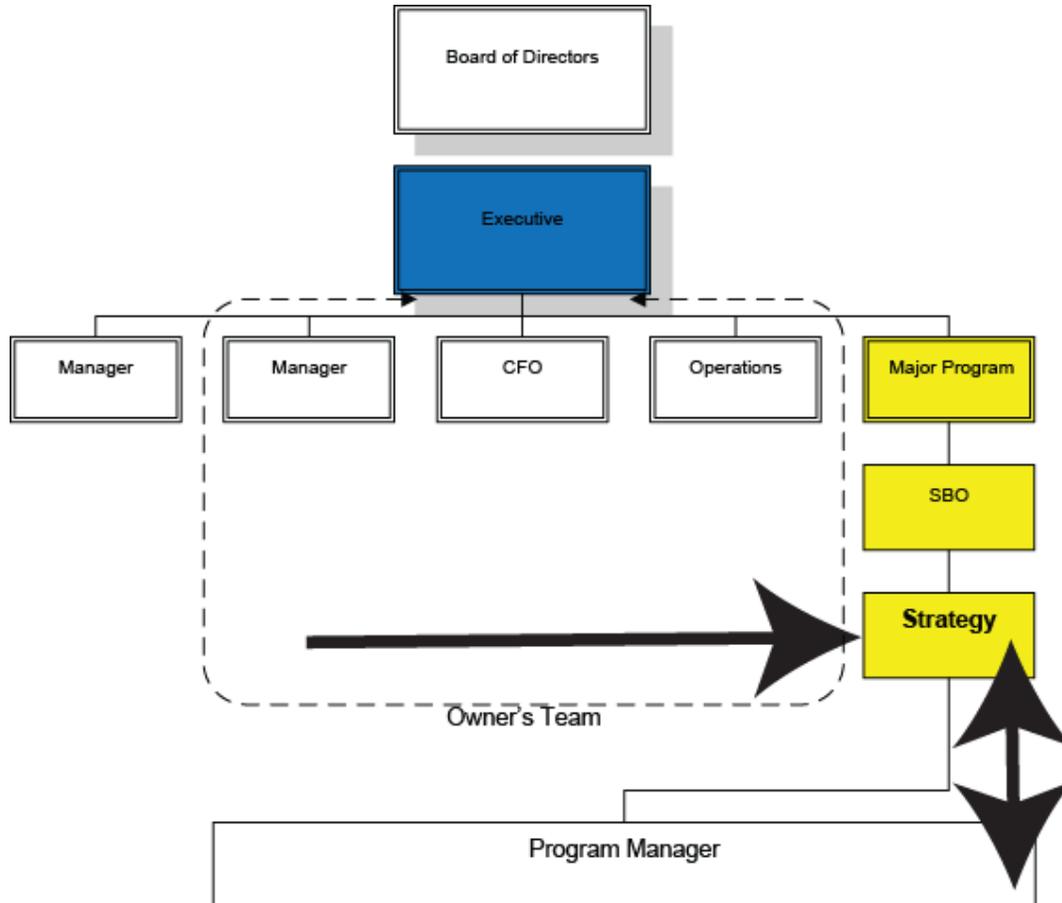
Alignment with key external stakeholders is reflected in the next chart.



Programs utilizing a dedicated program manager must achieve alignment on more than just Strategic Business Objectives. This is essential since major programs may drive the adoption of new engineering, procurement, construction and risk management approaches versus an organization's traditional approaches. The timing and nature of involvement of many or the owner's team's organizational elements is likely to be modified and without proactive alignment, friction, differing expectations and delays may result.

The nature of strategy alignment in a major program must include not only the Program Manager but also all those elements of the owner's organization that collectively encompass the owner's team. Alignment cannot be limited to the owner's element with direct responsibility for Program Manager oversight.

A key benefit of alignment activities undertaken around program strategy is the continued fostering of alignment within the owner's own team.



Strategy Alignment is Essential between the Program Management Contractor (PMC) and the Owner's Team

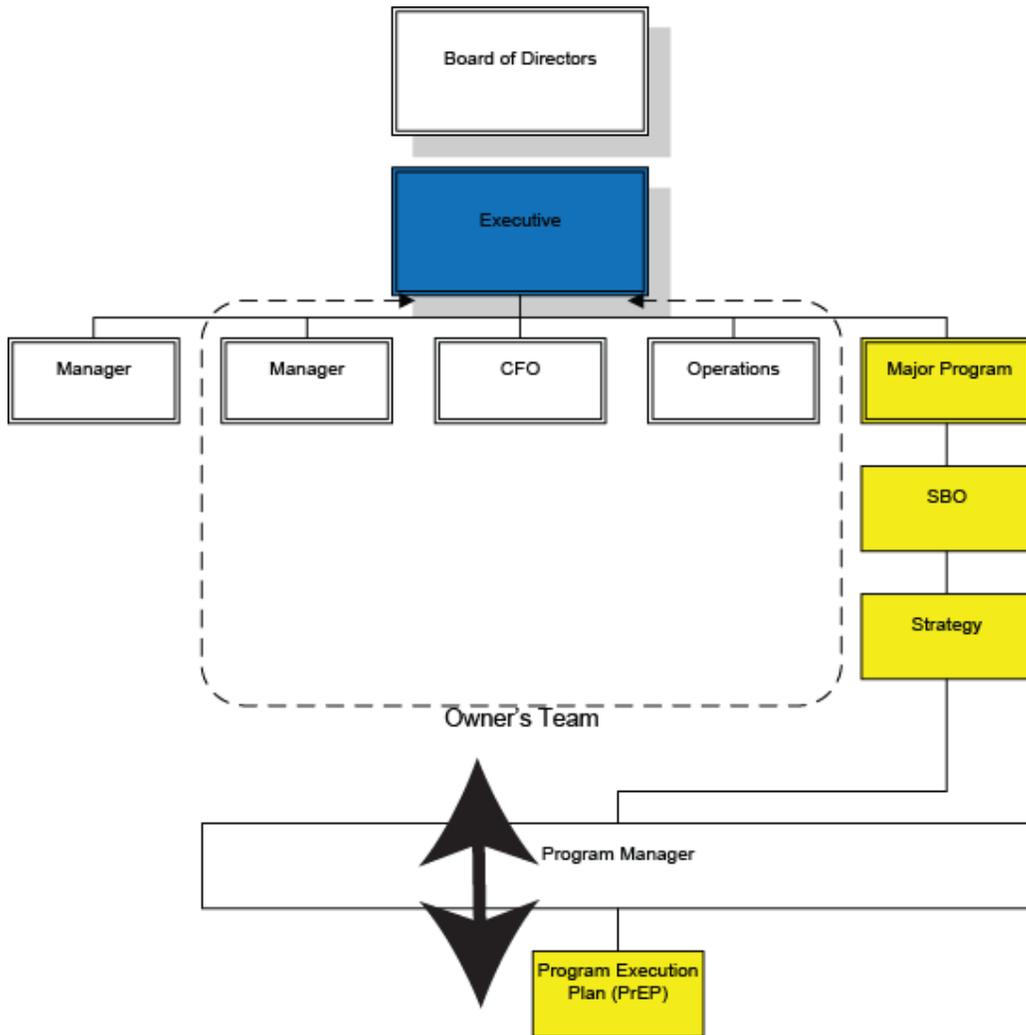
With alignment now in place for both the program's Strategic Business Objectives as well as its top-level execution strategy, the Program Manager now turns his attention to developing a detailed Program Execution Plan (PrEP) to implement the detailed strategy. The PrEP will lay out detailed approaches for all program activities including planning, studies, engineering, procurement, construction management, construction, HSE, risk management, materials management, logistics, commissioning, startup, testing, acceptance of work, quality, sustainability, treasury and accounting, invoicing, payment, sustainability, stakeholder management, change control and reporting.

The PrEP will define interactions, roles, responsibilities and authorities between the Program Manager and Owner's Team at a much more granular level of detail. Workflow and work processes will be described and these may differ from those previously used by the Owner's Team or even components of the Program Manager. Alignment activities at this stage are focused on getting the program execution team on the same sheet of paper.

An effective alignment session at this stage will result in:

- Reinforcement of Strategic Business Objectives, ensuring that they cascade down into the Program Execution Plan
- Clear linkage between the agreed to program strategy and the defined program execution approach
- Clear, unambiguous definition of roles and responsibilities of the owner and program management organizations. These will include the development of detailed RACI (Responsible, Accountable, Consulted, Informed) charts.
- Key result areas (KRAs) for project success, linked to top level KPI's associated with the SBOs, that have been clearly defined, including associated metrics, and agreed to by alignment participants.
- Communication channels, protocols and authorities well defined and commonly understood by alignment participants

It is at this stage that alignment activities requiring separate sessions from the main alignment activity including alignment focused on automation; invoicing; and industrial relations will likely occur for the first time. These added alignment sessions will likely cascade down to individual projects as the program gets underway.



**Alignment On the Developed Program Execution Approach
between the Owner's Team and the PMC is
Essential for Effective Program Management**

With an agreed to Program Execution Plan in hand the Program Manager now begins the process of initiating the various projects that will comprise the program. Project selection and definition are key to overall program success and alignment around these projects would have happened between the owner and program manager at both the strategy alignment and PrEP alignment stages.

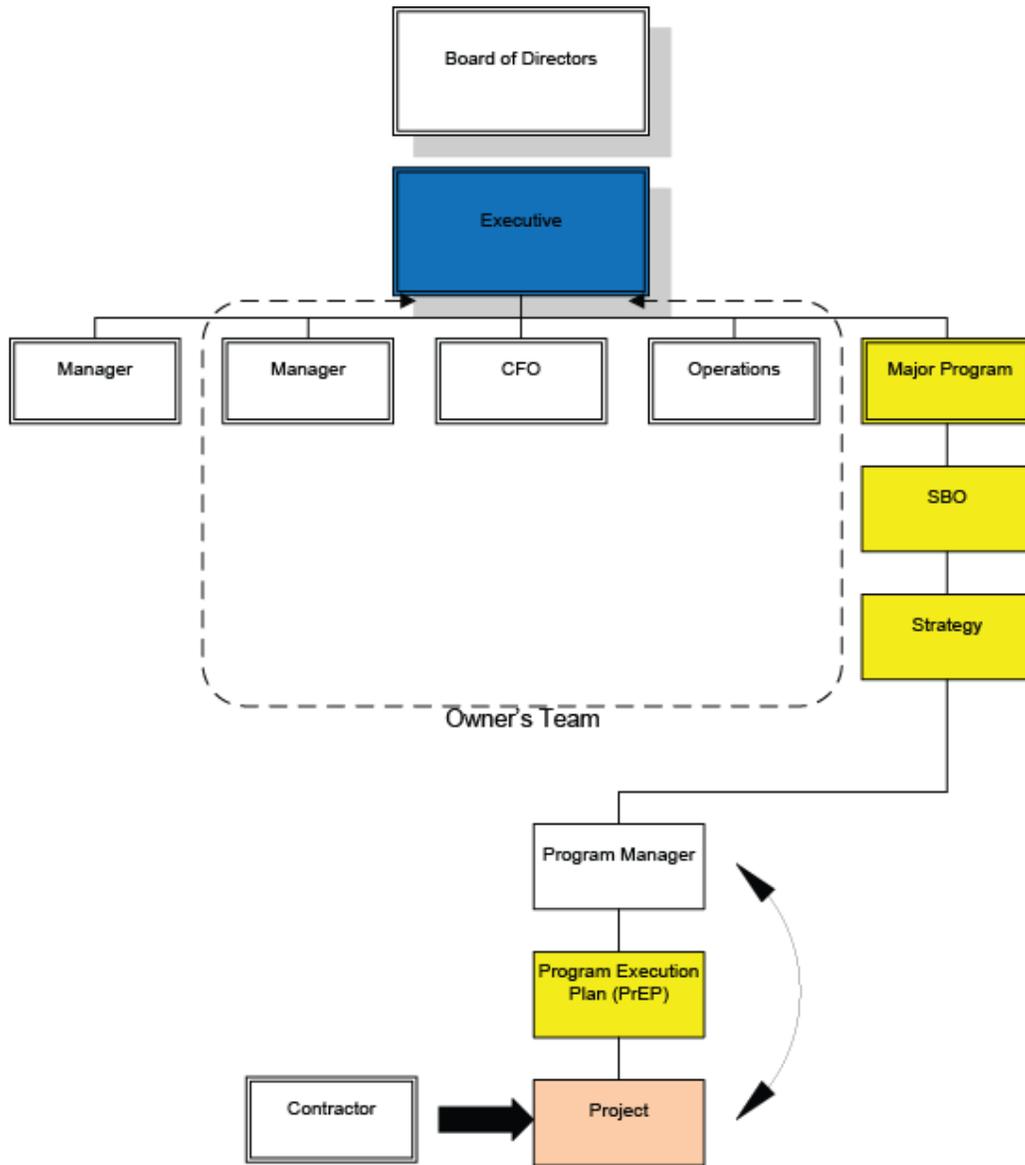
Project initiation activities are very much consistent with a project traditional alignment approach with the Program Manager undertaking many of the activities the owner would have performed in a discrete project setting.

Alignment between the Program Manager and Contractor will be explicitly around the project outputs as distinguished from the program outcomes. Project scope, purpose, KRAs, open issues, program or externally imposed constraints, work processes, required approvals and value improving opportunities will all be discussed.

Separate alignment sessions may be held around automation technology and industrial relations with the later important because of its potential program affecting nature.

Pre-alignment efforts will include extensive interviews, development of an explicit description of outcomes desired, definition of a manageable attendee list comprised of personnel responsible for project execution and a formal agenda.

The alignment of the Program Manager and a specific project contractor is reflected in the next figure.

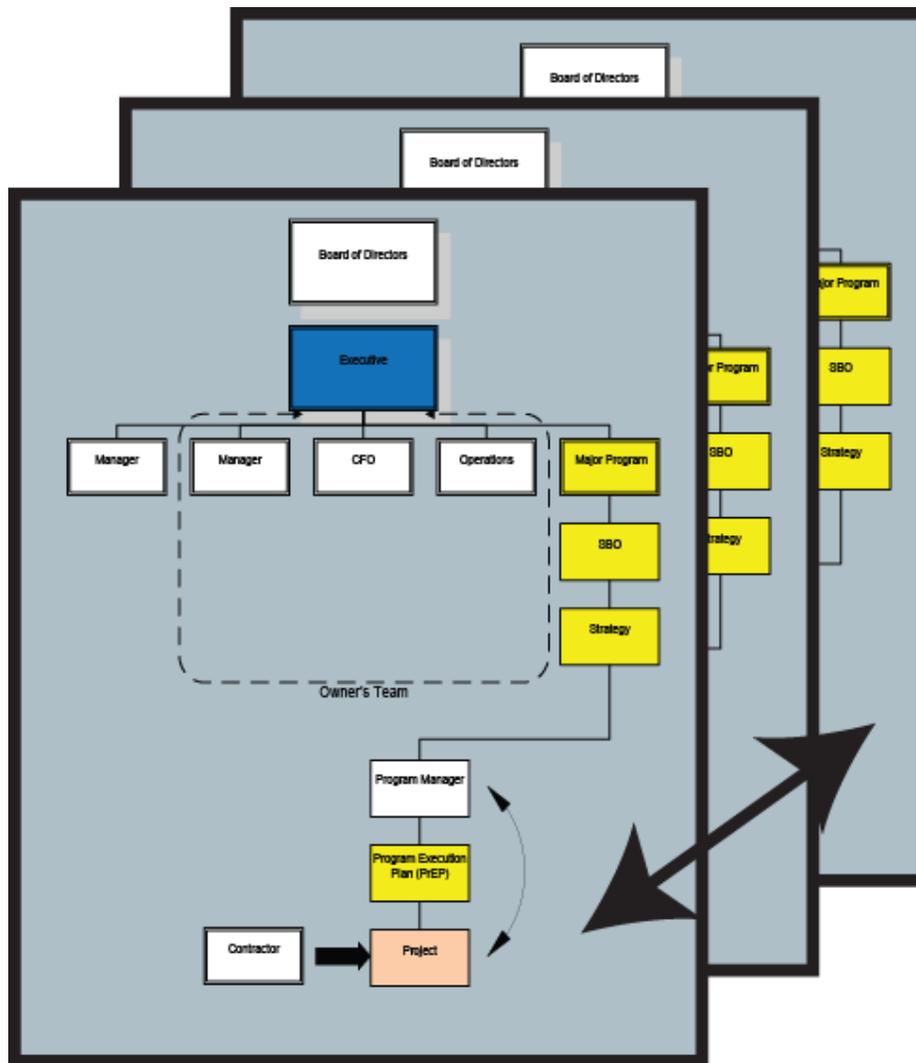


The Program Manager and Contractor Must be Aligned at the Project Level.

The Program Manager's project level alignment efforts cannot stop at this project-by-project alignment process more typical of a project delivery effort. Rather the Program Manager must recognize that the multiplicity of projects that may be competing for the same labor, sourcing to the same suppliers, or competing for the same construction equipment must be aligned as well.

These multi-project alignment activities provide the program manager the ability to identify potential issues and conflicts early. They will also provide a basis for identifying critical controls essential for overall achievement of the program's desired *outcomes*.

This alignment across projects can be seen below.

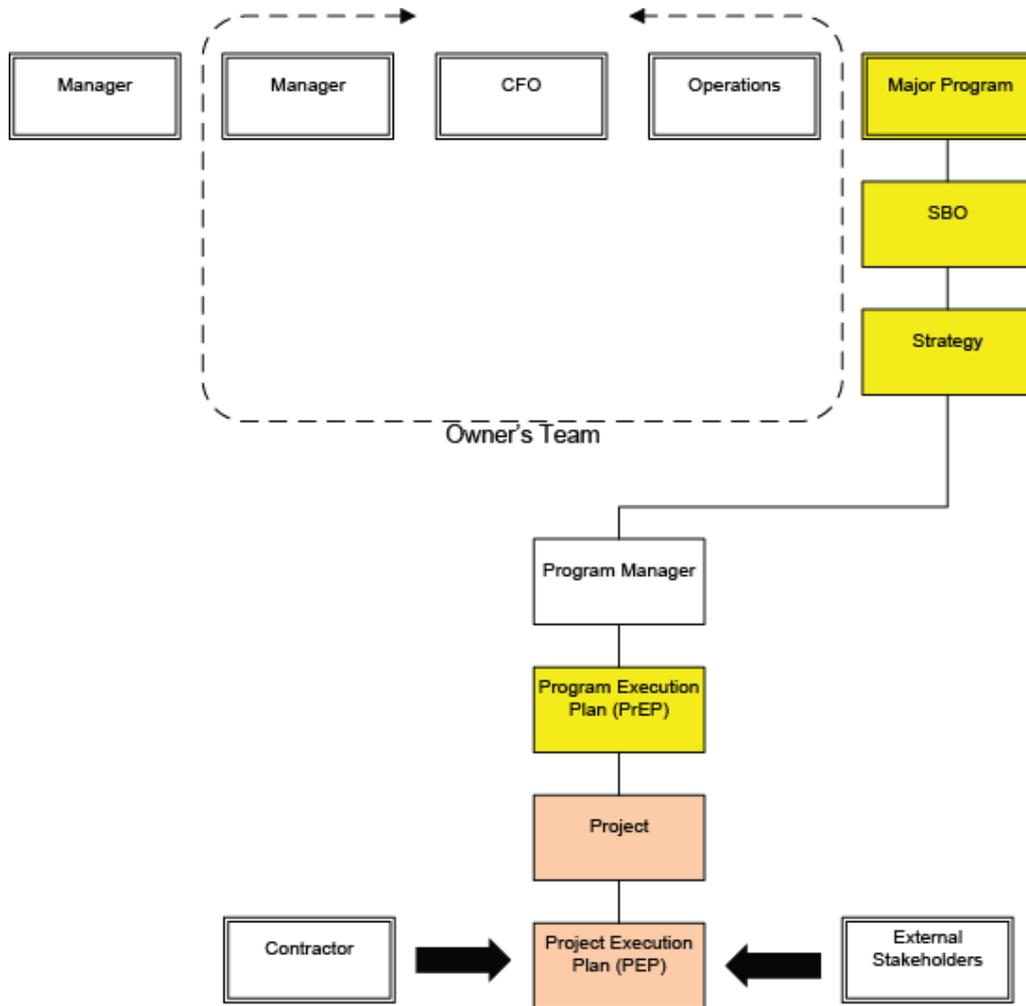


Alignment Across Projects is a Key Role of the Program Manager

Returning now to a specific project context, the selected project level Contractor now prepares a Project Execution Plan (PEP) that build off the initial project alignment session and reflects the Contractor's approach to work, consistent with project requirements laid out in the various contract documents including any referenced sections of the PrEP or other program management procedures incorporated.

In many instances the Contractor's project activities will interface with a set of external stakeholders which may include permitting or regulatory agencies; key suppliers and vendors; community-based groups; other Contractors under management by the Program Manager; or the general public.

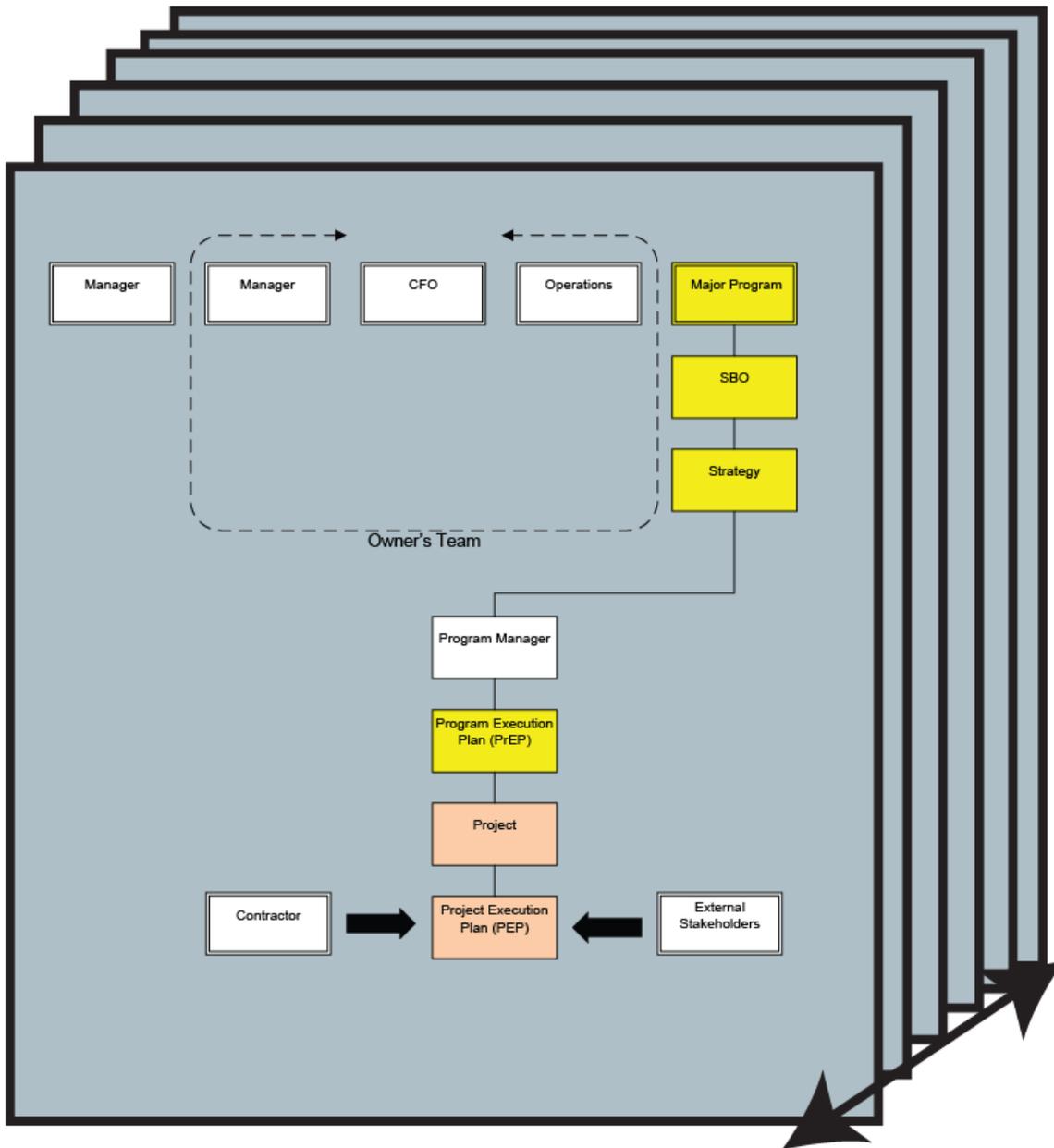
Alignment with these external stakeholders is key to project success and one or more alignment activities may be undertaken around various aspects of the project.



At the Individual Project Level the Contractor Drives Alignment with Project Affected External Stakeholders

Program and project level alignments are not singular activities. They are subject to change as projects and the program evolve; as the various projects comprising the program interact with each other; and as stakeholder involvement changes and new program and project level issues emerge. Continuous alignment is a key task of the Program Manager and is one of the differentiators between successful and unsuccessful programs. While change may be inevitable, surprises that are otherwise manageable need not be.

This ongoing alignment across projects comprising the program is illustrated below.

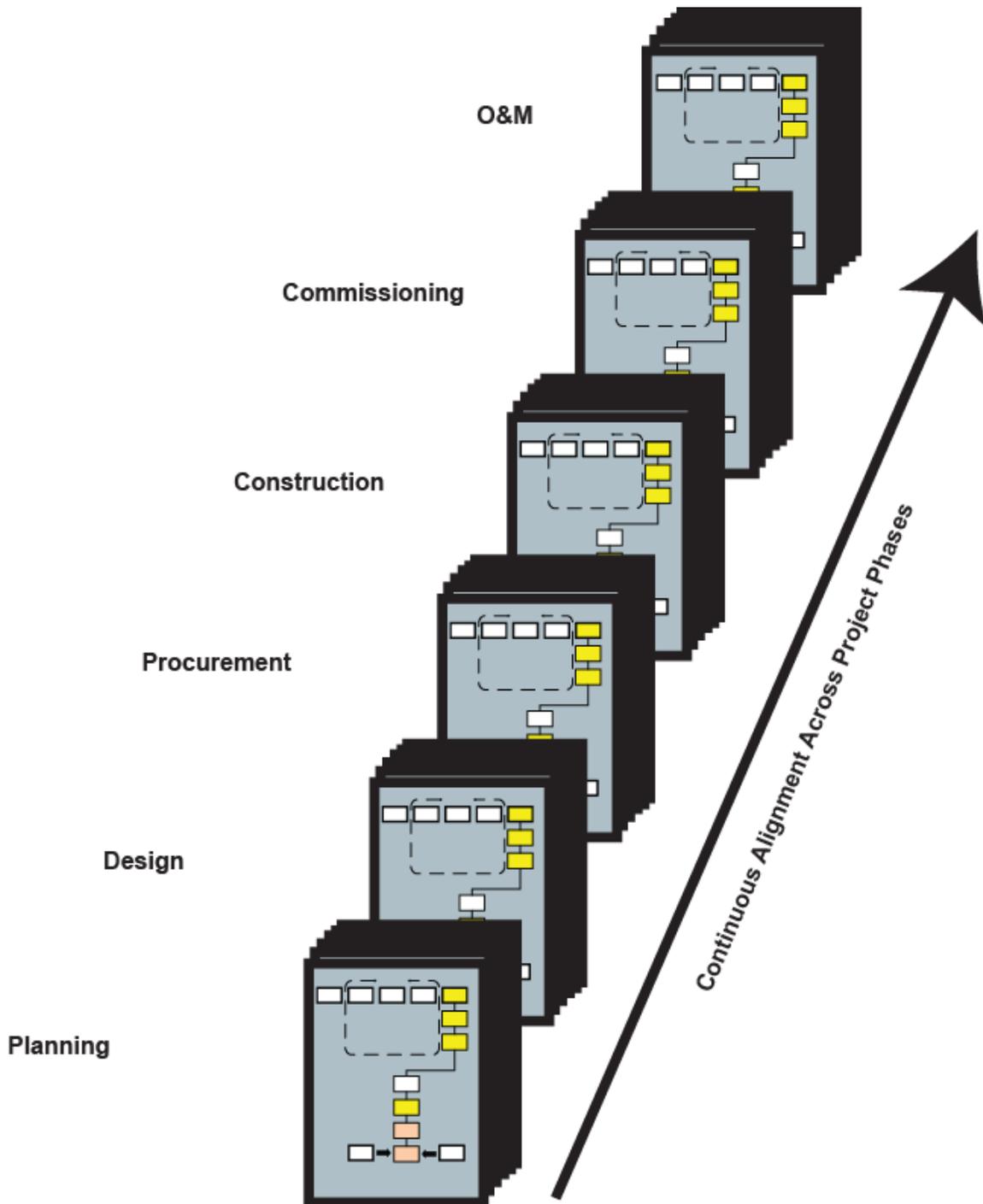


Program Management Requires Continuous Alignment of Projects to Ensure Strategic Business Objectives Are Met

Major programs move through a series of phases. Many of these phases may be linked to the owner's tollgate process for program and project approval. As the program moves from one phase to another it is important for the program manager to reconfirm the Strategic Business Objectives and continuing validity of the overall program strategy.

As each phase will likely change the nature of interaction between owner, program manager and project level contractors it is important to undertake alignment activities to reconfirm or re-baseline, as needed, the roles, responsibilities and authorities of individual participants. New RACI charts may be appropriate in subsequent phases, KRAs or associated metrics may evolve, and stakeholders may change.

This continuous alignment effort falls squarely on the shoulders of the Program Manager. At each stage he is assuring that the necessary pre-alignment activities have been comprehensively undertaken; effective alignment meetings conducted; alignment documented (project purpose; roles & responsibilities; KRAs including critical success factors; and an action plan); and achievement of the KRAs and other action plan items carefully monitored.



**Program Management Requires Continuous Alignment
Across Program Phases to Ensure Strategic Business Objectives Are Met**

Continuous alignment in engineering and construction programs utilizing a program management approach is essential to meeting an organization's and program's Strategic Business Objectives. While the alignment process will share many characteristics of those traditionally employed on well executed engineering projects, the nature and timing of the various alignment activities will be much more extensive. This is driven not only by the added scale and complexity of such programs but the importance of understanding the issues and interfaces that exist in the "white space" between the various projects comprising the program.

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About the Author



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Bob Prieto is a senior executive effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering and construction industries. Currently Bob heads his own management consulting practice, Strategic Program Management LLC. He previously served as a senior vice president of Fluor, one of the largest engineering and construction companies in the world. He focuses on the development and delivery of large, complex projects worldwide and consults with owners across all market sectors in the development of programmatic delivery strategies. He is author of nine books including “Strategic Program Management”, “The Giga Factor: Program Management in the Engineering and Construction Industry”, “Application of Life Cycle Analysis in the Capital Assets Industry”, “Capital Efficiency: Pull All the Levers” and, most recently, “Theory of Management of Large Complex Projects” published by the Construction Management Association of America (CMAA) as well as over 800 other papers and presentations.

Bob is an Independent Member of the Shareholder Committee of Mott MacDonald and a member of the board of Dar al Riyadh. He is a member of the ASCE Industry Leaders Council, National Academy of Construction, a Fellow of the Construction Management Association of America and member of several university departmental and campus advisory boards. Bob served until 2006 as a U.S. presidential appointee to the Asia Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC), working with U.S. and Asia-Pacific business leaders to shape the framework for trade and economic growth. He is a member of the Millenium Challenge Corporation advisory board where he had previously served. He had previously served as both as Chairman of the Engineering and Construction Governors of the World Economic Forum and co-chair of the infrastructure task force formed after September 11th by the New York City Chamber of Commerce. Previously, he served as Chairman at Parsons Brinckerhoff (PB) and a non-executive director of Cardno (ASX)

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