PM World Journal (ISSN: 2330-4480)
Vol. XIV, Issue IX – September 2025
www.pmworldjournal.com

Advisory

Foundations of Project Success
Part 2 - Organization
by Bob Prieto

Foundations of Project Success: Part 2 - Organization[1]

Bob Prieto

Introduction

This paper is the second of a three part series that covers three interrelated topics essential for successful management, execution, and delivery of today's engineering and construction projects:

- Comprehensive planning
- Organization, and
- Governance

Comprehensive Planning   Organization   Governance

Each of these topics could be an extended paper in their own right, but in this series we will touch on many of the aspects of each but know there is much more to each aspect. This series is driven in part by a recognition that later, larger problems on projects can trace their roots back to foundational activities that either have not been sufficiently thought through or in some case not even really considered.

The papers in this series are drawn from a script for a class the author previously taught, so the style is conversational.

Let's continue Part 2 of the series, organization.

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[1] How to cite this paper: Prieto, R. (2025). Foundations of Project Success: Part 2 - Organization*, PM World Journal,* Vol. XIV, Issue IX, September.

PM World *Journal* *(ISSN: 2330-4480)*

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Organization

There are five important organizational design considerations.

The first is culture. Culture is about values, behaviors, willingness and capacity to change. Culture matters. Strong cultures are hallmarks of good teams and organizations.

The second is leadership. Leadership entails having a clear vision and a sharp focus on desired outcomes and objectives. The SBOs if you will. Leadership is about having and setting priorities and executing on them. Leaders can't do this by themselves. They require and must build and sustain an aligned team.

The third organizational design consideration deals with decision making and organizational structure. A clear RACI must be established and used. The value of time must be understood. On one struggling project what one minute of time was worth was calculated. The PM used it in his meeting to see how much time should be invested in making a decision. Think about the "return on time" on your projects. Finally, the organization and the organizational structure must support the SBOs

Fourth, people are valued and challenged for growth. The company, project team, and individuals have the talent required for success. You need to support them in achieving success by aligning performance measures and incentives to objectives.

The fifth and final consideration revolves around processes and systems. Organizational design must ensure that project work processes are executed at the highest achievable levels. The organization must be supported by efficient systems and support processes and be committed to continuous process improvement.

So, what constitutes the right organizational structure?

The right structure:

- Considers all organizational design considerations, the five we just considered.
- Ensures all considerations support each other. They are all important. You can't choose to ignore one.
- Aligns strategy and organization.
- Recognizes that most successful organizations are hybrids of established organizational models. There is no one size fits all approach.
- Accepts there is no right answer but there may be a better answer. And it is always on the lookout for it.
- Remains aware of compromises made. Knowing what has been traded off is important to better manage the project.

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- Manages weaknesses that have been identified and the tradeoffs that have been made. No organization is uniformly strong and a perfect fit for the tasks at hand.
- Recognize that the organizational structure will likely evolve with the project. I have often said that large complex projects require three project managers. The first to get it well founded and well underway. The second is to deliver on the plan. And a third to bring it to close, efficiently starting it up and closing it out. Different organizational structures will similarly be required through the life of the project.

Let's look now at some organizational elements and groupings.

Organizational structures consist of groups and links. The groups can be differentiating or aggregating. The links can be based on integration or information sharing. The majority of effort is spent on groupings, everybody likes drawing boxes, but the majority of organizational structural problems are from links. This is analogous to what we see in a WBS where the focus is on the task boxes, but the problems start when those connecting arrows get messed up by influencing flows.

Various grouping models exist for organizational structures. These include:

- Functional
- Geographic
- Program/product
- Customer
- Matrix

We will look at these shortly but remember there is no one right model. They have different strengths and weaknesses determined as much, or more, by the strengths and weaknesses of the people that occupy the boxes and the strength and resilience of the links which bind the organization together.

One consideration that does not receive as much attention as it should is the relationship between corporate and project models and project and client models. It can be argued that corporate organizations must be focused on supporting projects, their only source of revenue. Similarly, client organizations should support project organization success if their SBO's are to be achieved.

Let's turn now to looking at each of the five organizational models that we just outlined. You are likely familiar with many of them.

Functional Model

Let's begin with the functional model.

In the functional model the organization is organized around key functions or departments.

These can include engineering, construction management, project controls, contracting/subcontracting, procurement, materials management, safety and others

This model is most appropriate when the organization and geographic area is small.

Challenges arise if construction occurs at more than one location, such as when there is modularization or extensive pre-assembly. Especially if there are significantly different labor capabilities and conditions

Pros – depth of skills; functional innovation; accountability clear

Cons – functions may work at cross purposes with different priorities; suboptimize performance of organization; cross-organization links may be weak or broken; and cross functional decisions are elevated within the organization

Geographic Model

The second model we will look at is the geographic model.

In this model we are organized around major geographies. For a Company this can be regions, territories, cities, states, countries. For a project this can be multiple construction sites including offsite construction of modules

The geographic model is most appropriate when the organization is spread across multiple geographies and local differences, such as labor availability, costs, and climate are critical for success

Pros – greater access to available and specialized resources; cost differential between mod yards and final project site

Cons – expands management demands; functional duplication; variance in work processes and outputs; culture may break down

Program or Product Model

The third model is a program or product model.

This model is:

- Organized around major programs that require multiple projects to deliver a singular set of SBOs or products
- Each program typically has a singular end customer
- Products will have high similarity in output or work process, often with a mod yard serving all the company projects

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- This model is most appropriate when programs and required resources are very different than each other. For example, oil and gas vs. housing.

Pros – promotes program innovation and building of program knowledge and clear accountability

Cons – requires strong program vs. project management skills; there can be functional duplication and culture may break down

Customer or Market Model

The fourth model is a Customer or Market Model. It is organized around customer groups and the focus shifts to company vs project.

It is most appropriate when customers are very different and have different output requirements and level of service

Pros – puts a very strong focus on the most important customers; it facilitates tailored customer and market specific offerings; There is clear market accountability

Cons – very strong customer facing skills and knowledge is required; functional duplication will likely increase; strong potential for culture breakdown; Additionally, similar customer groups can result in duplication

Matrix Model

The final organizational model is the matrix model. This organization model is used to manage multiple dimensions. It is most appropriate when strong management in depth exists. This unfortunately is rare.

Hybrid models are more common.

Pros - Creates open lines of communication between project teams. Eliminates need to realign the organization every time a project starts.

Cons – Staff may lack clarity in reporting hierarchy. Reporting can be more situational. Also, project managers have less control.

Let's look at matrix organizations a little more in depth.

There are several types of matrix organizations. Understanding the strengths and weaknesses in a matrix approach aids in designing a fit for purpose organization. A key differentiator is the level of authority of the project manager

- Weak – PM has least amount of decision-making power. Project budget and timeline in hands of department head

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- Balanced – department head and PM have equal authority and staff members report to both.
- Strong – PM has most of the decision-making power over the project. Department head oversees assigned resources but doesn't make key decisions.

We discussed some of the pros of a matrix organization. Let's expand on those.

Matrix organizations have:

- Clear project objectives. PMs own them; define them; and continuously and consistently communicate them.
- Efficient use of resources. There is better management of utilization and better deployment of specialists. Technical oversight and standards enforcement is strong as is recruitment, and development of qualified resources.
- Information flows in two directions – issues are elevated more quickly Remember the importance of the value of time.
- PM training is focused on professional PMs and allied disciplines such as CM and Project Control
- Technical training and development is leveraged across common, shared resources
- Improved technical retention. People have a place to come home to.

We also detailed some of the cons of a matrix organization. Let's expand on those:

- Reporting is more complex in a matrix organization. Matrix organizations require careful attention to what is measured and appropriate KPIs.
- Avoiding slow response requires strong management oversight and rapid issues elevation
- Staff may receive conflicting guidance. The roles and authorities of the PM and the Discipline or resource manager must be clear and simple. PM role is to achieve outcomes. The Discipline or resource Manager is focused on Standards and Quality.
- Power struggles as one side of the matrix or other seeks to strengthen their "power." This is a real risk and both project and organizational management must be mindful and addressed quickly when it becomes apparent.
- Discipline and resource managers require enough control over project assigned resources to juggle broad array priorities across multiple projects.

Linking Mechanisms

Returning to an original point we made when discussing organizations. We said that groupings are the usual focus and linking mechanisms are the usual problems.

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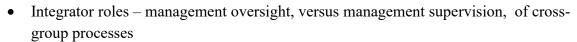*Foundations of Project Success*
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What are the roles played by linking mechanisms?

They include communication, coordination, control and oversight.

What are some of the types of linking mechanisms we see in organizational design?

 Four such linking mechanisms include:

- Liaison – coordination by trusted individual
- Cross-unit committees – focused on client, this occurs at the company level, or process or product such as modules. This occurs at the project level.
- Integrator roles – management oversight, versus management supervision, of cross-group processes
- Dotted lines – linking of distributed function resources

Avoid	Do

• Over designed linkages
  • Too many meetings; need to inform too many people
    • RACI not clear or enforced
• Under designed linkages
  • Poor coordination across boundaries; lack of organizational awareness; too many decisions bubble up
	• Invest time in evaluating alternative linkages
	  • Management processes must support structural linkages
	  • Look at relationship to external interfaces
	• Avoid complexity – minimize linkages
	• Use strong leadership roles vs. matrix organization

This figure shows a few do's and don'ts to improve linkage performance. Let's start with some things to avoid.

Avoid:

- Over designed or "heavy" linkages
- This is characterized by too many meetings and a need to inform too many people
- This often reflects a RACI that is not clear or enforced
- Under designed or "light" linkages
- This is characterized by poor coordination across boundaries and a general lack of organizational awareness. Too many decisions bubble up and the organization is operating inefficiently.

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Let's turn now to improving linkage performance.

Do:

- Invest time in evaluating alternative linkages
- Remember management processes must support structural linkages and remain focused on SBO delivery
- Look at relationship to external interfaces. Many problems can originate from outside the project team. Remember those influencing flows.
- Avoid complexity – minimize linkages. The greater the ratio of linkages to tasks the more complex the project.
- Use strong leadership roles and strong leaders vs. just relying on a matrix organization

Project Organization

Let's look closer at a project organization:

- Projects are generally executed using a task force of skilled professionals assembled from the appropriate functional groups and led by a project manager or project director. Roles, responsibilities, authorities must be clearly defined
- Each project organization includes a number of individuals who are assigned to manage the execution of the project
- Positions vary depending on the business group, project size and scope of services and facilities
- Project organizations must be fit for purpose and able to respond to change. They must be agile

Projects are comprised of individuals in a set of well-defined roles. Let's look at a couple of those roles:

- Project Managers
  - Typically report to a business line or office operations leader
  - Primarily responsible for executing all aspects of the project in accordance with the prime contract
- Site Managers
  - Report to the project manager
  - Primarily responsible for managing and executing construction, turnover, startup, and/or operations and maintenance activities in accordance with the prime contract.
- Project Engineering Managers

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- - o Report to the project manager
  - o Primarily responsible for coordinating the execution of the engineering work.

The project team is rounded out by project leads and all other employees.

- Project Leads
  - o Report to the project engineering manager or project manager, and functionally to their respective office or department manager.
  - o Project leads include the engineering leads for each discipline as well as all other project execution functions.
- All Employees
  - o Responsible for their assigned activities and complying with Company requirements and discipline plans, processes and procedures relevant to their work. These include Company Code of Business Conduct, Ethics and Safety policies.

What are some of the lessons learned on organizational design?

We have touched on a few but let's recap:

- Lack of clear roles and responsibilities results in confusion, overlaps, duplication, and gaps. Think of these gaps as White Space in the project. We will talk more about white space risks when we cover risk. This lack of clear roles and responsibilities is deadly. The importance of a good and well implemented RACI cannot be overstated
- Ensure robust communication channels for both formal and informal information flow and decision making. There is value in management by walking about. Being "present" counts.
- Empower timely decision making at the appropriate level
- Cost of time needs to be recognized. What is a minute or an hour worth on your project?
- Resource management, both allocation and utilization, is key to project success. Resources include time, budget, personnel, equipment, materials, and information.
- Accountability must be clear, and a culture of responsibility enforced
- Build organization for innovation
- Weak structures resist change
- Also consider conducting an organizational innovation audit

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Conclusion

In this series we will cover three topics.

- Comprehensive Planning
- Organization, and
- Governance

In this paper, we covered Organization looking at both

- Organizational design and
- Project roles

Delivering mega-scale infrastructure programs demands an integrative approach that begins with unambiguous, time-bounded SBOs and extends through disciplined planning, fit-for-purpose organizational design, and robust governance. By employing diagnostic tools (e.g., PDRI), establishing baseline-centric controls, weaving hybrid structures with clear linking mechanisms, we establish elements of project success.

Disclaimer on Use of AI: *In preparing the manuscript, AI-based editorial tools (e.g., Grammarly) were used for grammar refinement, and language models (e.g., ChatGPT or similar) were selectively consulted to explore alternate phrasing and improve clarity. All core ideas, structure, and substantive content are original, derived from the author's professional experience and past presentations. Where relevant, previous materials have been appropriately referenced or adapted.*

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Bob Prieto is Chairman & CEO of Strategic Program Management LLC focused on strengthening engineering and construction organizations and improving capital efficiency in large capital construction programs. Previously, Bob was a senior vice president of Fluor, focused on the development, delivery, and turnaround of large, complex projects worldwide across all of the firm's business lines; and Chairman of Parsons Brinckerhoff, where he led growth initiatives throughout his career with the firm.

Bob's board level experience includes Parsons Brinckerhoff (Chairman); Cardno (ASX listed; non-executive director); Mott MacDonald (Independent Member of the Shareholders Committee); and Dar al Riyadh Group (current)

Bob consults with owners of large, complex capital asset programs in the development of programmatic delivery strategies encompassing planning, engineering, procurement, construction, financing, and enterprise asset management. He has assisted engineering and construction organizations to improve their strategy and execution and has served as an executive coach to a new CEO. He is author of eleven books, over 1000 papers and National Academy of Construction Executive Insights, and an inventor on 4 issued patents.

Bob's industry involvement includes the National Academy of Construction and Fellow of the Construction Management Association of America (CMAA). He serves on the New York University Tandon School of Engineering Department of Civil and Urban Engineering Advisory Board and New York University Abu Dhabi Engineering Academic Advisory Council and previously served as a trustee of Polytechnic University. He has served on the Millennium Challenge Corporation Advisory Board and ASCE Industry Leaders Council. He received the ASCE Outstanding Projects and Leaders (OPAL) award in Management (2024). He was appointed as an honorary global advisor for the PM World Journal and Library.

Bob served until 2006 as one of three U.S. presidential appointees to the Asia Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC). He chaired the World Economic Forum's Engineering & Construction Governors and co-chaired the infrastructure task force in New York after 9/11. He can be contacted at rpstrategic@comcast.net.