NAC Executive Insights

Organizational Design for Project Execution

Key Points

- Five organizational design considerations are outlined.
- The “right” organizational structure is defined.
- Various organizational groupings are described.
- Matrix organization types, advantages and cautions are examined.
- Improving linkage performance is examined.
- Various roles in a project organization are highlighted.
- There is no one size fits all in organizational design.

Introduction

This Executive Insight looks at organizational design as it relates to project and construction organizations.

- Organizational design considerations
- “Right” organization structure
- Organizational groupings
- Types of matrix organizations
- Advantages and cautions of matrix organizations
- Groupings and linkings
- Project organization and roles
- Organizational lessons learned

Organizational Design Considerations

There are five important organizational design considerations.

The first is culture. Culture is about values, behaviors, willingness and capacity to change, and the unwritten/unspoken rules. 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, motivate, and sustain an aligned team.

The third organizational design consideration deals with decision making and organizational structure. A clear RACI (Responsible-Accountable-Consulted-Informed) diagram must be established and used. The value of time must be understood. On one struggling project I calculated what one minute of time was worth. The PM used it in his meetings to see how much time should be invested in making a decision.

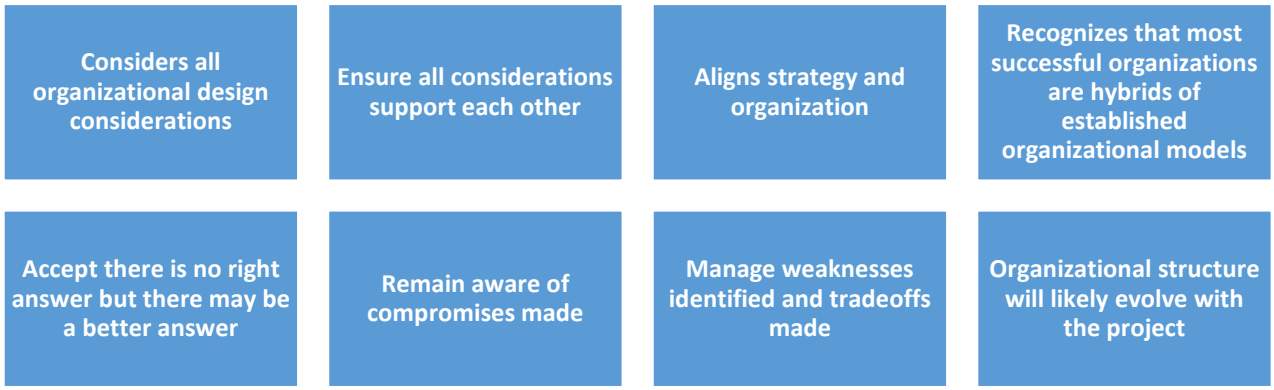
Think about the "return on time" on your projects. Finally, the organization and its decision-making structure must support the SBOs (Strategic Business Objectives).

Fourth, people are valued and motivated. Assuming the company, project team, and individuals have the talent required for success, you need to support them achieving it by aligning performance measures and incentives to the project objectives.

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

"Right" Organizational Structure

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 the organizational design with the project execution strategy.
- 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 is always on the look out for it.
- Remains aware of compromises made. Knowing what has been traded-off is important to better manage the project.
- 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.
- Recognizes 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 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.

Organizational Grouping - 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 (Work Breakdown Structure) 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:

1. Functional
2. Geographic
3. Program/product
4. Customer
5. Matrix

We will look at these in the following sections 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 contractor 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.

1. **Functional Model**

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. Let's begin with the functional model.

In the functional model the organization is organized around key functions or (capability) 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 is significantly different labor capabilities and conditions.

Pros – depth of skills; functional innovation and excellence; clear functional accountability

Cons – functions may work at cross purposes with other valid priorities; suboptimize SBO and/or project performance; cross-organization links may be weak or broken; and cross-functional decisions are elevated and tedious within the organization.

2. **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.

Pros – greater access to available and specialized resources; cost differential between mod yards and final project site. Greater focus on what's happening minute-by-minute at each location.

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

3. **Program/Product 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 with single set of SBO's.
- Products will have high similarity in output or work process, often with a mod yard serving all the company projects

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

Pros – promotes program innovation and building of program knowledge and clear accountability for SBO's

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

4. **Customer/Market Model**

It is organized around customer groups and the focus shifts to company business unit vs project. It is most appropriate when customers are very diverse 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 common culture breakdown; Additionally, similar customer groups can result in duplication of capabilities.

5. **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 in depth management 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.

The next section explores the various types of matrix organizations we encounter.

Types of Matrix Organizations

There are several types of matrix organizations. Understanding the strengths and weaknesses in a matrix approach aids in designing a fit-for-purpose organization.

Let's look at the different types of matrix 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 heads
- **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.

Advantages of Matrix Organization

Let's expand on the advantages of matrix organizations:

- **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 Controls.
- **Technical training and development is leveraged** across common, shared functional resources.
- **Improved technical retention**. People with specialized functional skills have a place to come home to.

Matrix Cautions

Let's expand on the cons of a matrix organization:

- **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 address quickly when it becomes apparent.

- **Discipline and resource managers control** project assigned resources to juggle broad array priorities across multiple projects.

Groupings and Linkings

Let's step back to an original point we made when discussing organizations. We said that:

- Groupings are the usual focus
  …. Linking mechanisms are the usual problems

So what are the roles played by linking mechanisms? They include communication, coordination, control and oversight.

There are four types of linking mechanisms we see in organizational design:

- **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

Improving Linkage Performance

Detailed below are 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 simple, 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.

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 relationships 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 versus simply 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 working together 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
- **Site Managers**
    - Reports to the project manager and functionally to corporate construction leadership.
    - Primarily responsible for managing and executing construction, turnover, startup, and/or operations and maintenance activities
- **Project Engineering Managers**
    - Reports to the project manager and functionally to corporate engineering leadership.
    - Primarily responsible for coordinating the execution of the engineering work.
- **Project Leads**
    - Report to the project engineering manager or project manager, and functionally to their respective office or department manager.
    - Project leads include the engineering leads for each discipline as well as all other project execution functions.
- **All Employees**
    - 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.

Organization Lessons Learned

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 significant 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?
    - Where is the critical path at right now? Is this decision on or near critical path?
- Resource management, both allocation and utilization, is key to project success. Resources include time, budget, personnel, equipment, materials, decisions and information.
- Accountability must be clear and a culture of responsibility enforced.
- Build the organization for effective innovation:
    - Weak structures resist change.
    - Also consider conducting an organizational innovation audit.

Conclusion

Organizational design needs to reflect the strategic business outcomes to be accomplished; the particular challenges and opportunities present in the project; the project team’s culture, starting with the owner’s culture; the scale and complexity of the project; the capabilities of the resourcing organizations, and the project execution approach selected.

Organizational requirements evolve with the project as will the project organization itself. Often the boxes and groupings on a project are drawn around the strengths and capabilities of key managers and team elements.

There is no one size fits all in organizational design.

For Further Reading – Other Executive Insights

- White Space Risks
- The Importance of Strategic Business Objectives

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. Bob received the 2024 ASCE OPAL Award (Outstanding Projects and Leaders) for his Outstanding Lifetime Achievement in Management.

Although the author and NAC have made every effort to ensure accuracy and completeness of the advice or information presented within, NAC and the author assume no responsibility for any errors, inaccuracies, omissions or inconsistencies it may contain, or for any results obtained from the use of this information. The information is provided on an "as is" basis with no guarantees of completeness, accuracy, usefulness or timeliness, and without any warranties of any kind whatsoever, express or implied. Reliance on any information provided by NAC or the author is solely at your own risk.