

# PROJECT MANAGEMENT BASICS

Rick Panos AIA, CCM

Director of Construction Management

Totum Consulting

Gary Cardamone, P.E., FCMAA

Principal, G J Cardamone Consulting, LLC

# **Program Management Is . . . .**

In the context of the construction industry, program management is the application of Construction Management to large, complex or multiple capital improvement projects.

# **Project Management Is . . . .**

The use of integrated systems, resources and procedures by the Project Team to successfully accomplish the planning design and construction of the intended project to the satisfaction of the owner.

# Similarities between Project and Program Management

- Both manage resources and relationships to achieve an owner's desired outcome
- Both include budgeting, estimating, scheduling and quality checks
- Both may use in house staff or contracted professionals

# Differences between Project and Program Management

- Programs are most often comprised of multiple projects
- Programs demand heightened traditional skills as well as a greater variety of services

# Project Management Functions

- Project Planning and Management
- Cost Management
- Schedule Management
- Scope Management
- Quality Management
- Safety/Risk Program Management
- Contract Administration
- Leadership

# Project Management Focus

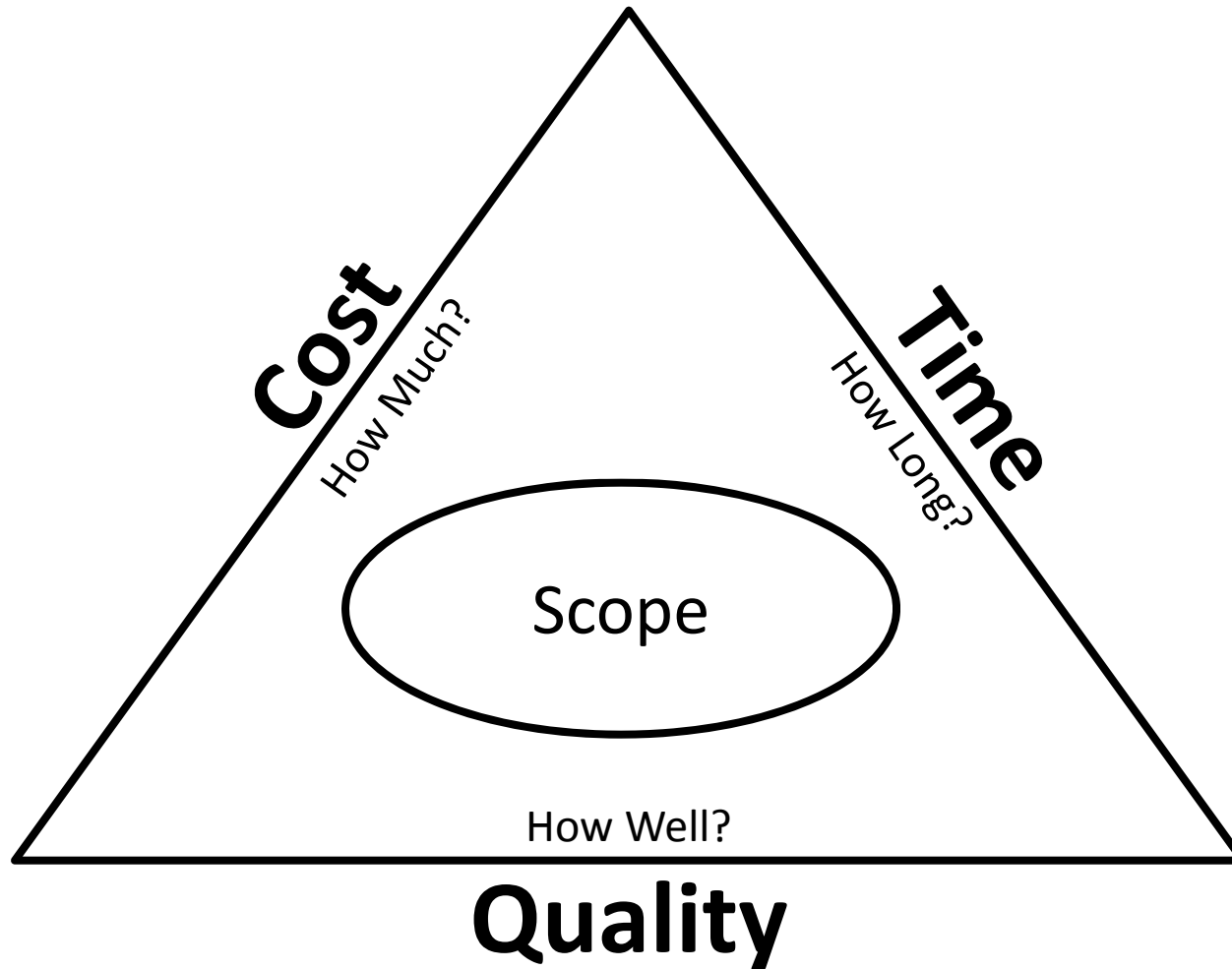
- Control time, scope, cost and quality
- Apply integrated systems and procedures to achieve the owner's goals
- Encourage professionalism, teamwork and "ownership"
- Provide leadership to all project stakeholders
- Manage and resolve key problems that affect scope of work

# Project Management Goals

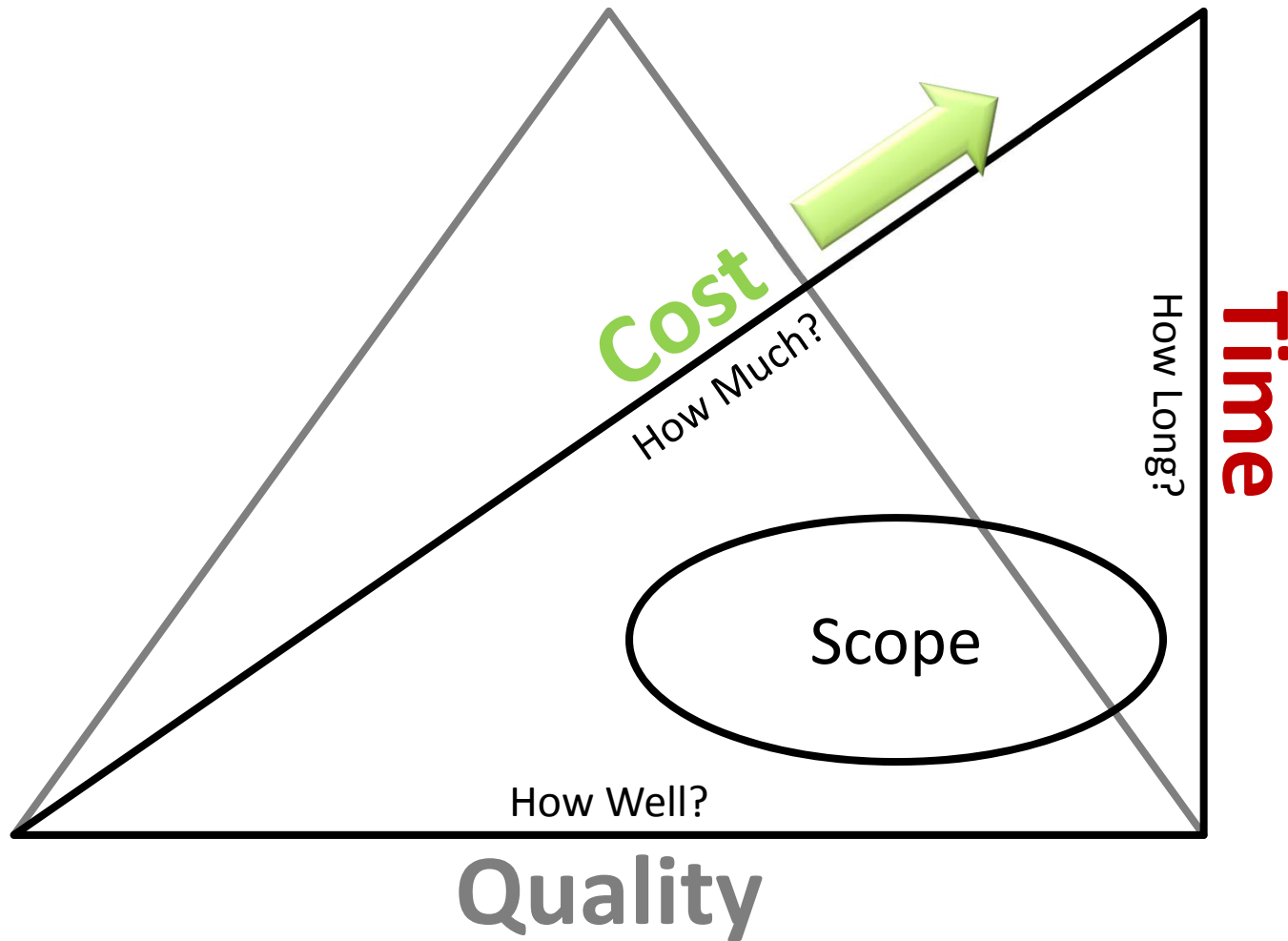
- Cost Control
  - Complete within the owner's budget
- Time Control
  - Finish within the owner's required timeframe
- Quality Control
  - Meeting final product expectations, objectives, standards and intended purpose
- Scope
  - Complete in accordance with design, legal, contractual parameters



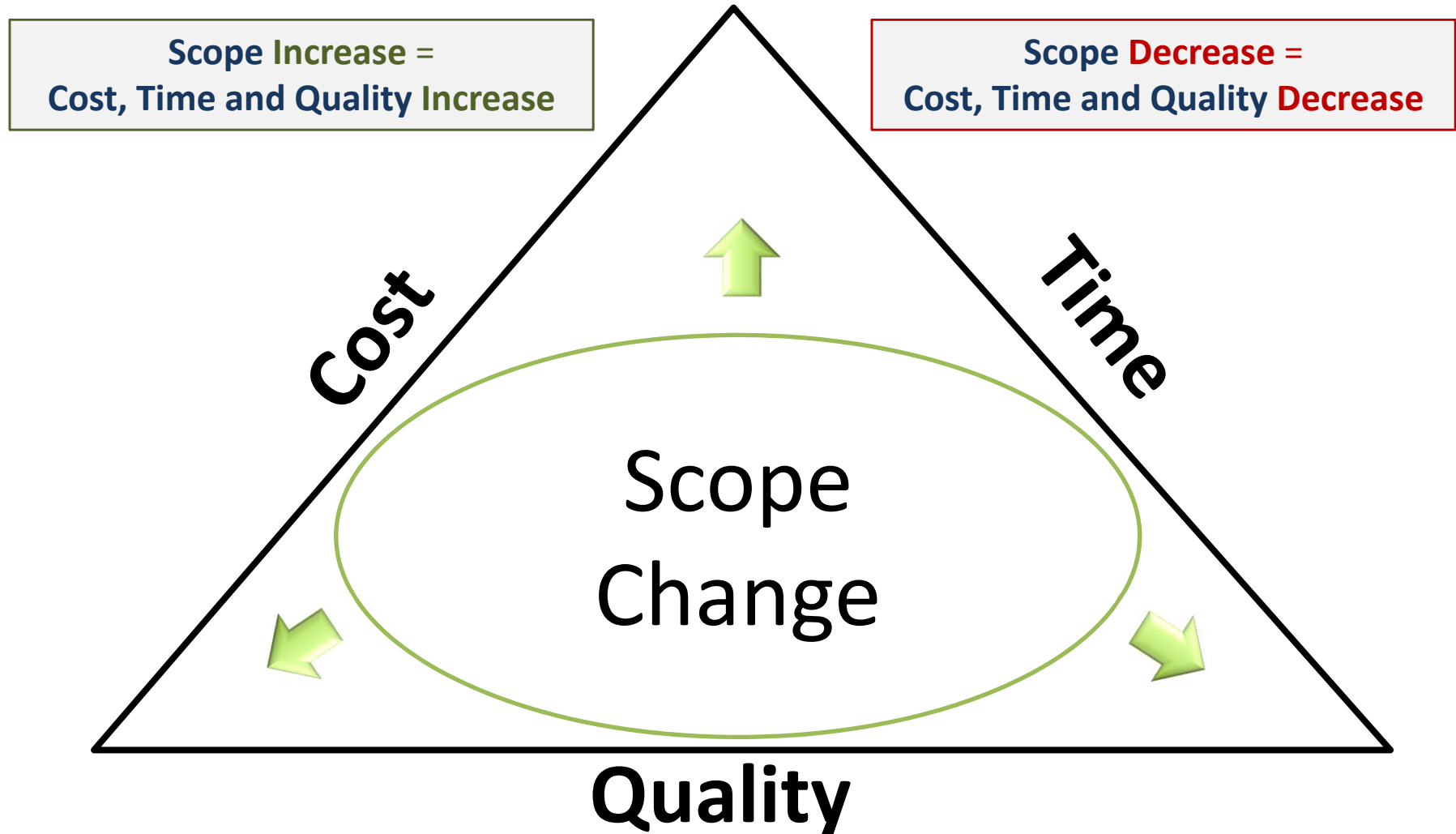
# Interrelations of Time, Cost, Quality and Scope



# Interrelations of Time, Cost, Quality and Scope



# Effects of Change in Scope



# Other Project Management Goals

- Safety
- Environmental
- Social

# **Key Skills and Functions of the Successful Project Manager (1 of 2)**

- Ensures that there are clearly stated, comprehensive agreements between parties
- Ensures that there are clearly drawn, accurate and complete contract documents
- Provides fair, fast, inclusive and timely decision-making
- Promotes and seeks agreement for pre-planned resolution procedures

# Key Skills and Functions of the Successful Project Manager (2 of 2)

- Provides personally effective people skills
  - Disagreeing without being disagreeable
  - Arguing issues, not egos
  - Resorting to “higher authority” quickly
- Providing proactive leadership to the project



**Communicate!**

# Management of the Project Team

- Projects need multi-disciplinary teams of specialists
- Multi-disciplinary teams of specialists need attentive leadership
- Professionals will (generally) follow the rules
- Partnering, leading to a collaborative culture, is the ultimate goal of the project

# Owner's Requirements

- Understand the levels of authority and responsibilities between the owner and the PM
- Explain to the owner what information you can provide
- Promote a philosophy and practice of no surprises
- Be familiar with the owner's needs in detail
- Be responsive and proactive to the owners requirements



# Selection of Designers and Contractors

- Clarify the role the owner wants the PM to perform
- In many cases the PM may not control the owner's decisions in selection
- Promote a Pre-Qualification phase
- All designers and contractors are not equally competent
  - Expertise and reputation should match the project requirements
- Check references

# Issues with the Selection of Designers and Contractors

- If the “wrong” designer, contractor or subcontractor has been selected, act quickly to advise the owner of the possible impact, and identify practical options
- Assist the owner on communications and relationships to the construction industry

# Coordinate and Collaborate the Integrated Construction Process

- The PM and their team with approval from the owner should provide the coordination and collaboration role on the integrated construction process
- Interface with other stakeholders:
  - Local governments
  - Utilities
  - Citizens
  - Planners, designers, contractors and end users

# **KEY PROJECT MANAGEMENT TOOLS**

# **Development and Coordination of Contract Documents and Plans**

- Language in all contracts, specifications and drawings must be accurate, consistent and understandable (KISS)
- Language in bid submittal documents must be carefully coordinated with all contract documents
- Properly coordinate for all scope packaging and project operating plans and procedures
- Cross reference between all documents

# The Project Management Plan

- Defines/documents project requirements
- Establishes scope, budget, schedule and quality
- Identifies team members, their roles and responsibilities
- Identifies organizational structure
- Addresses significant site and environmental issues
- Establishes communications protocol
- Identifies contracting strategy
- Basis for evaluating team's performance

# Project Procedures Manual

## TYPICAL CONTENTS

Cost control procedures

Schedule control procedures

Communications procedures

MIS procedures

QA program procedures

Safety program procedures

Contractor coordination procedures

Documentation procedures

Meeting protocol

Roles and responsibilities

Team organization

Levels of authority

Procedures for all contract administration documents

# Quality Management Plan

## TYPICAL CONTENTS

Project organization

Quality goals and objectives

General methodology for QA

QA/QC responsibility

Decision flow charts

Quality assurance plan

Quality control plan

**Everyone's Job is Quality**



# Construction Procurement Plan

- Identifies alternative contracting strategies
- Evaluates strategies and identifies pros/cons with respect to owner's requirements and constraints
- Recommends specific strategies with supporting rationale
- Establishes necessary actions prior to procurement

# Project Safety Plan

- Responsibilities for project safety must be identified in accordance with the contract documents, laws and stakeholders insurance policies and requirements
- The PM and owner plus the contractor should develop appropriate plans and policies for the compliance, monitoring, and performance of employee health and safety as well as construction activities so there is agreement and clarity on who is responsible for what
- The project safety plan and policies should be made available to all project participants

# **Contracts and Agreements Provided by the Owner**

- Form of contract
- Special provisions
- Standard provisions
- Drawings
- Payment schedule

# Standard Forms

- CMAA, AIA, AGC, others
- Modified standard forms
- Owner-prescribed forms
- Send your contract to review by:
  - Legal counsel
  - Insurance provider

# The Law(s)

- We are a society based on the concept of law
- Statutes, both Federal and State
- Case law...it grows every day and helps define required “standards of care”
- Helps shape risk management plans

# Standards of Care

- It's what is expected of you
- You need to learn them, understand them, and stay current on them
- Your boss might...the judge and jury will...judge your actions with respect to Standards of Care!
- The “right” standard of care will be judged in accordance with:
  - Terms of the PM agreement
  - Current statutes and case law
  - What other prudent PMs would do (or have done) in similar circumstances

# Key Reference Documents Needed by the Project Manager

## TYPICAL REFERENCE DOCUMENTS

Applicable codes and standards  
(e.g., local building code)

CMAA Standards of Practice

OSHA 1926 latest edition

EEO agreements

Company standards

owner's standards

Local emergency contact and communication information

# Management Information System (MIS) Benefits

- Efficient computer based communication tool used by all stakeholders
- Provides control of levels of authority
- Status and forecast compared to PMP (Project Management Plan)
- Basis for managing, identifying, and evaluating problem areas and variances
- Address information needs, data sources and control elements for time, cost, and quality control
- Accommodate continuing input of data



# Items Tracked in MIS

## TYPICAL ITEMS TRACKED IN MANAGEMENT INFORMATION SYSTEMS

General correspondence

Procurement data

Periodic reports of activity performance

Material control

Drawing schedules

Meeting minutes

Submittals

Oral instructions / field directives

Transmittals

Inspection and test results

Change requests and authorizations

Non-conforming work

Daily reports / weather conditions

Scheduling records

Cost records

Progress photos

# Pre-Design Phase

## PROJECT MANAGER ACTIVITIES IN PRE-DESIGN

Understand the concepts of the project development

Start the project organization

Start Project Management Plan

Start Project Procedures Manual

Initiate Designer(s) selection

Conduct Pre-design project conference

Identify Management Information System

Conduct special studies/reports (soils, existing drawings)

Constructability reviews

Identify “construction lessons learned” prior to design

# Design Goals

- Complete a set of documents defining a project that can be built in the current marketplace within the owners established budget, scope quality, and schedule requirements
- Basic sections required of a complete set of contract documents:
  - Technical specifications
  - Project drawings
  - Agreements
  - Bid/proposal forms

# Design Phase

## PROJECT MANAGER ACTIVITIES IN THE DESIGN PHASE

Document review (phased)

Meetings

Document distribution

Cost control: independent phased cost estimates

Scope verification and sign-offs

Time control: milestone development

Project funding

Consultant coordination

Public relations

Permit approval oversight

Front-end documents: contract, general and supplementary conditions

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# Procurement Phase

## PROJECT MANAGER ACTIVITIES BEFORE BIDDING/SELECTION

### Public Relations

Develop requirements for selection of pre-qualified bidders

Understanding basic content required of contract general conditions

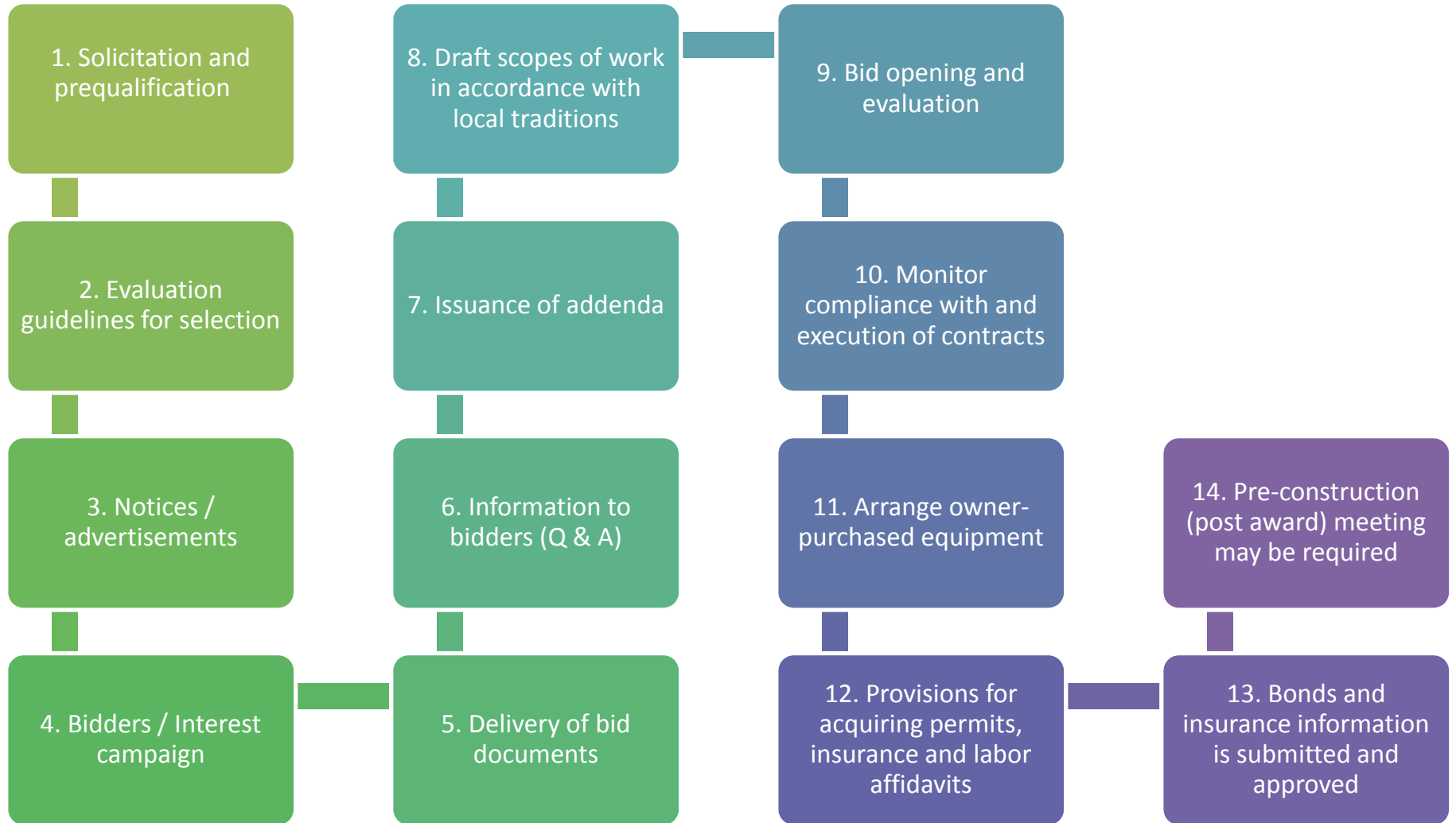
Developing bidding or proposal procedures

### Assessing bidding climates

Assessing and evaluating bidder or proposer qualifications

Addressing risk management issues

# Bidding and Contracting Process



# Construction Phase

## PROJECT MANAGER ACTIVITIES DURING CONSTRUCTION

Time management	Quality management
Claims management	Dispute resolution
Management reporting	Management of owner-purchase materials and equipment
Managing on-site facilities	Managing safety policy/plan
Cost-loaded CPM	Contractor's schedule of payments
Budget and cost reporting	Contract Modifications (change orders)
Record drawings	Record keeping
Coordination	Meetings
Public relations	Utility, environmental requirements and off-site improvement oversight

# Dispute Resolution and Mitigation

- Resolve at Lowest Level Possible
- Fair and Equitable
- Don't Let them "Fester"
- Dispute Resolution Methods
  - Partnering
  - Dispute Resolution Board
  - Mediation
  - Arbitration



# Near the End of Construction

## KEY TERMS FOR THE PROJECT MANAGER TO UNDERSTAND NEAR THE END OF THE PROJECT

Preliminary inspection prior to occupancy

Punch list work

Substantial completion

Commissioning

Start-up

Beneficial occupancy

Final inspection

Final completion

Organization of OandM manuals, warranties, training

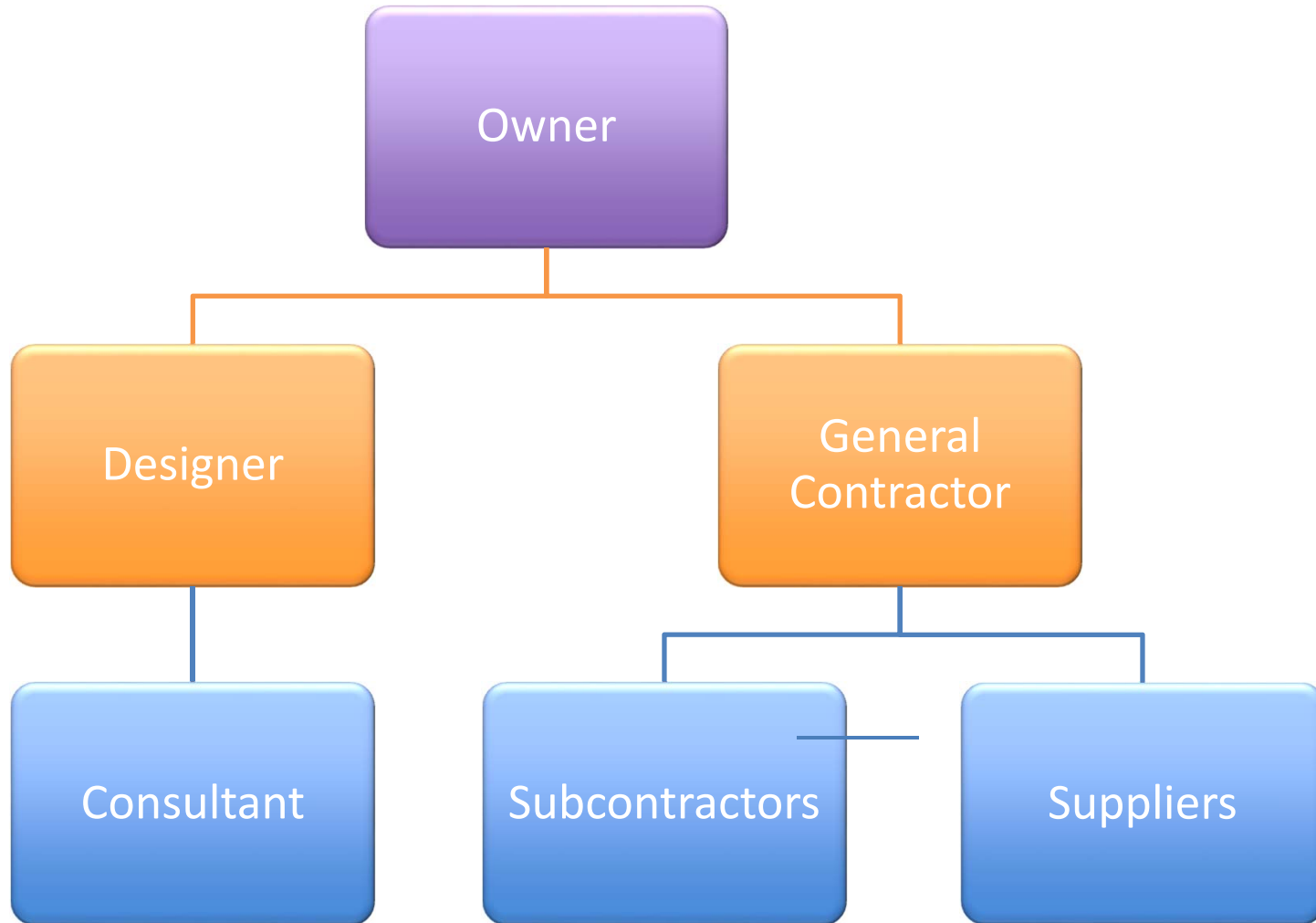
# Post-Construction

- Project Manager Activities include
  - Preparing and transmitting documents connected with the final payment
  - Assembling the as-built drawings and documents
  - Contractor follow-up
  - Owner move-in or start-up
  - Contractor call-back on warranty work
  - Contractor closeout

# Four Main Delivery Methods

- Design-Bid-Build (Traditional Method)
- Multiple Prime
- CM at Risk
- Design-Build

# Design-Bid-Build



# Design-Bid-Build Advantages and Disadvantages Activity

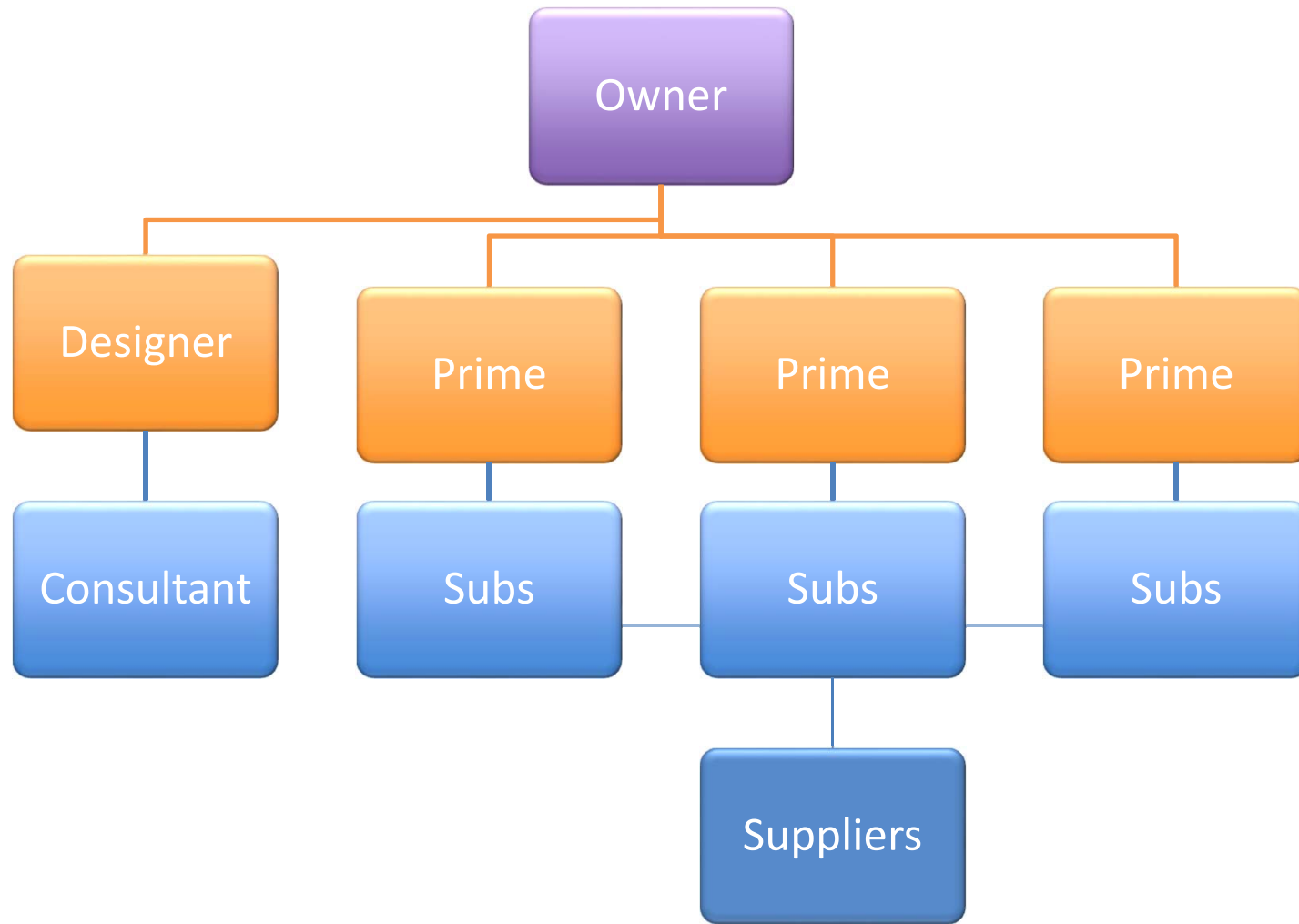
## Advantages

- Widely applicable
- Understandable
- Owner retains control
- Owner “knows” the cost prior to start
- Relatively slow

## Disadvantages

- Owner is liable for the design
- Constructability issues
- Adversarial relationships fostered

# Multiple Prime



# Multiple Prime

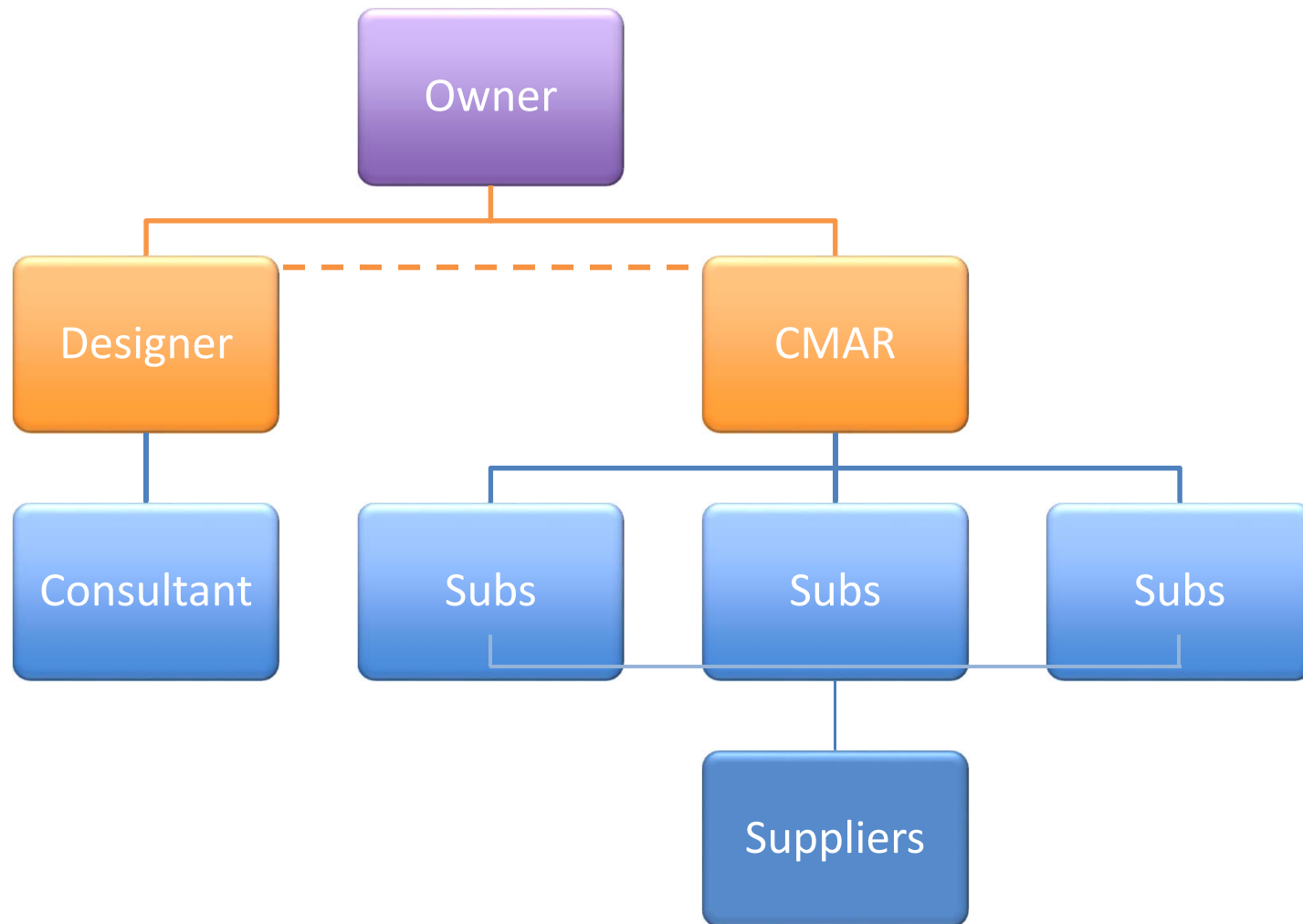
## Advantages

- Increased owner control
- Work easily fast-tracked
- Save general contractor markups
- Some states require it
- Owner has risk of controlling time and coordination

## Disadvantages

- Multiple accountability for performance
- Unknown “final” cost at construction start
- Same owner risks as traditional approach

# CM at Risk





# CM at Risk

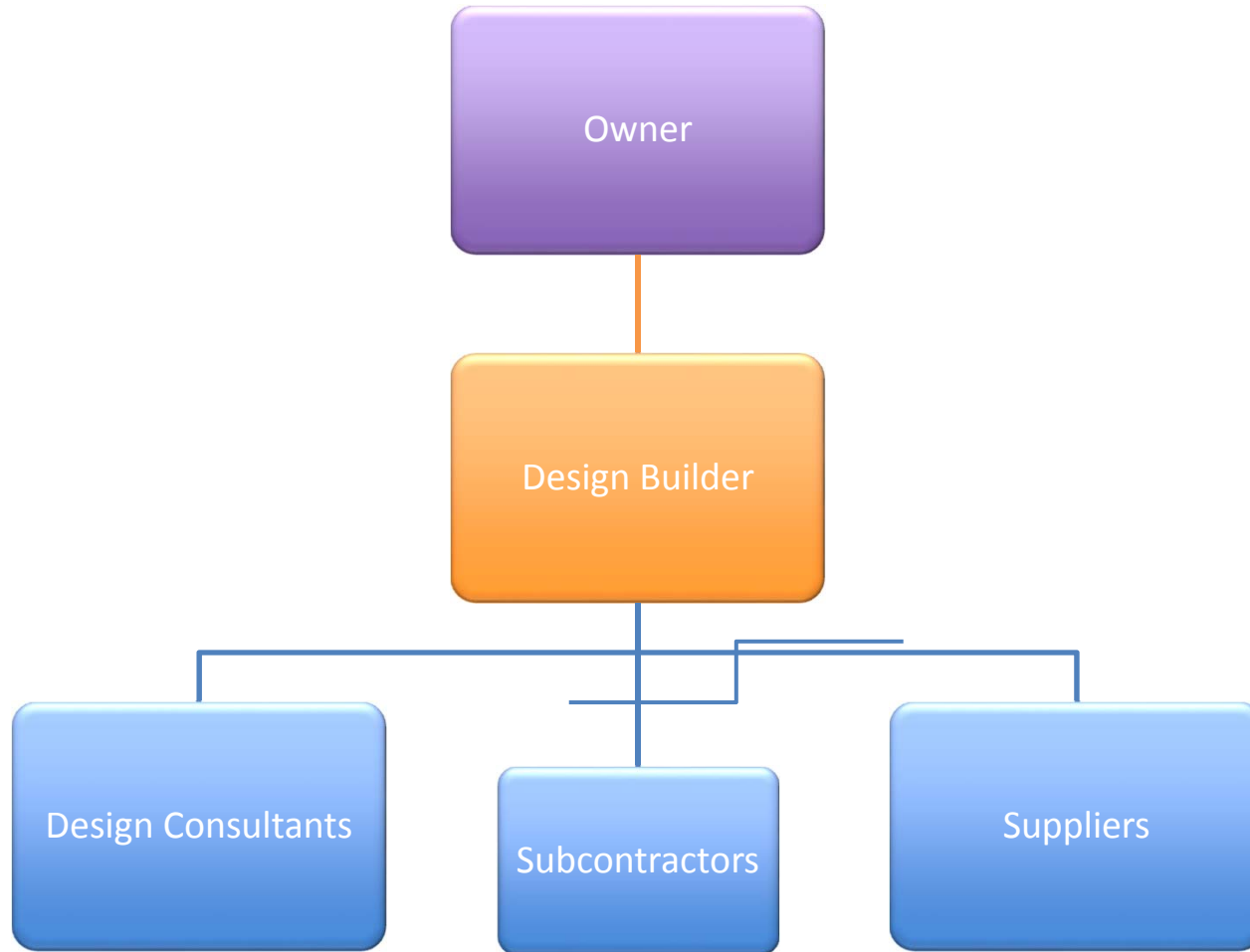
## Advantages

- Well-suited for fast-tracking
- Contractor (and subcontractor) input on design alternatives
- Better cost info
- Permits “picking” of the builder

## Disadvantages

- Change of CM’s accountability after
- GMP (guaranteed maximum price) is signed
- Tempted to sign GMP “too soon”
- Variations in procurement methods

# Design-Build



# Design-Build

## Advantages

- Accountability for project delivery
- Reduced disputes
- Can cut time and cost
- Builder can have input in design / constructability
- Budget established early on

## Disadvantages

- Early definition of the program required
- Owner's loss of control during design
- Potential for quality to be compromised

# What Next?

- Professional CM Course
- CMAA National Conference
  - San Francisco October 19 – 21
  - PCM Course October 17 – 19
- Contact Info
  - Rick Panos
    - 562-208-8654
    - panos@totumconsulting.com
  - Gary Cardamone
    - gary.cardpe@gmail.com