PROJECT DELIVERY SYSTEM

Dr. Ahmed Elyamany

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Project Delivery Systems

- Factors affect the selection of PDS:
  - Past practices, traditions, and experience;
  - The advice of consultants;
  - Funding sources and constraints;
  - The effective use of staff and working capital;
  - The interests of other project stakeholders.

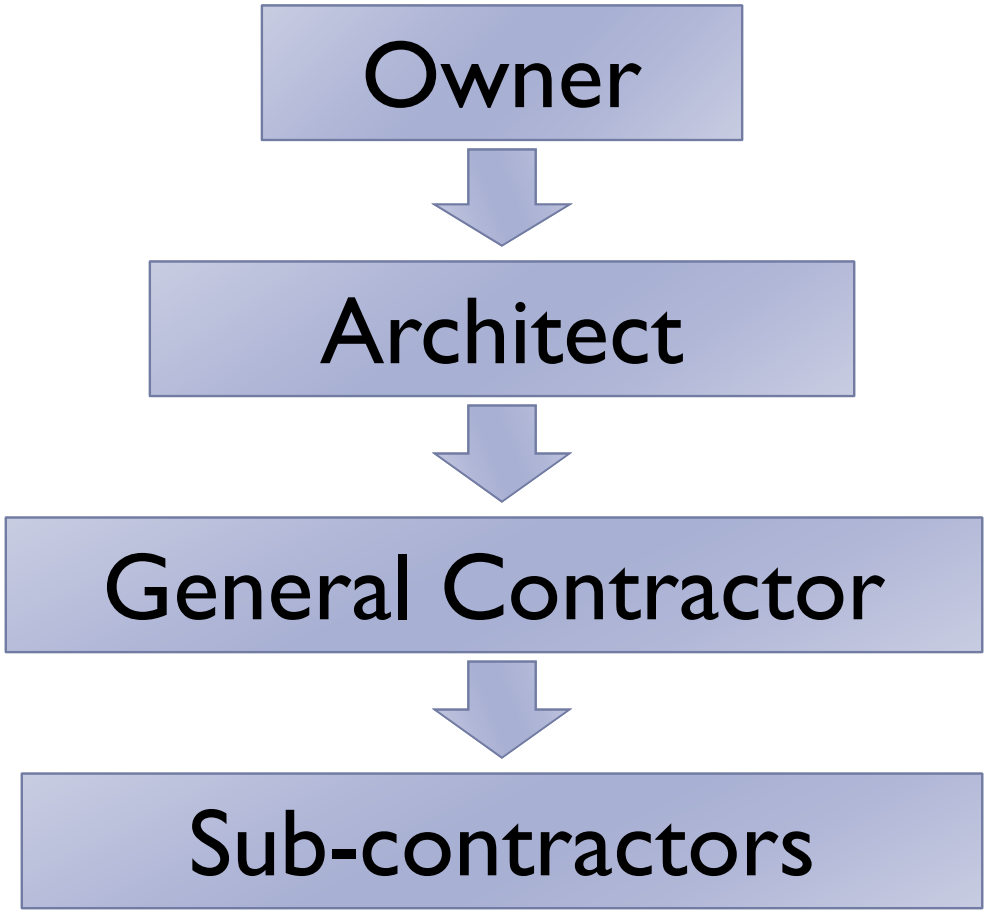
Project Delivery Systems

- This term describes how the participants are organized to interact, transforming the owner's project goals and objectives into a finished facility.

Project Delivery Systems

- Design/Bid/Build (DBB)
- Design/Build (DB)
- Turn Key
  - Design/Build/Finance (DBF)
  - Build/Operate/Transfer (BOT)
  - Build/Own/Operate/Transfer (BOOT)
  - Build/Own/Operate (BOO)
- Construction Management (CM)

Design-Bid-Build



Design-Bid-Build

- Three Sequential Phases

1. Design Phase
   - Owner hires team of architects and engineers to build plans and specs used to solicit bids
2. Bid Phase
   - "open process"-any qualified bidder
   - "select process"-limited number of pre-selected bidders
3. Construction Phase
   - Winning contractor becomes General Contractor
   - General Contractor hires sub-contractors

Design-Bid-Build

- Owner selects A/E to design the project
- When design is approved by owner, one General Contractor is selected to build the project
- General Contractor is selected through a competitive bid and reports directly to the owner

Design-Bid-Build

- General contractor performs part of the work and subcontracts the specialty work
- GC usually performs 15-40% of the work.
  - On most public contracts GC is required to perform at least 25%
  - Private contracts vary
- Method can be used on any of the four types of contracts already described

Design-Bid-Build

- Advantages:
  - Owner deals with only one contractor

- Disadvantages:
  - Adversarial relationship could develop with the owner in the middle between the GC and the A/E

Benefits to owner

- Process well understood
- Design Team is unbiased
- Complete set of documents up front
- Same set of documents to all
- Ensures fairness to bidders
- Assists in reasonable prices
- Uses competition

Risks to owner

- Failure of design team to be current with construction cost
- Potential cost increases
- Lowest bidder may be undesirable
- GC's bidding may include low bidder
- No up front input from GC
- Potential adversarial relationship between designer and builder
- Final costs unknown until bids are finalized

Alternate Construction processes

- Fast Track concept

- Design-Build
- Construction Management
- Turn Key

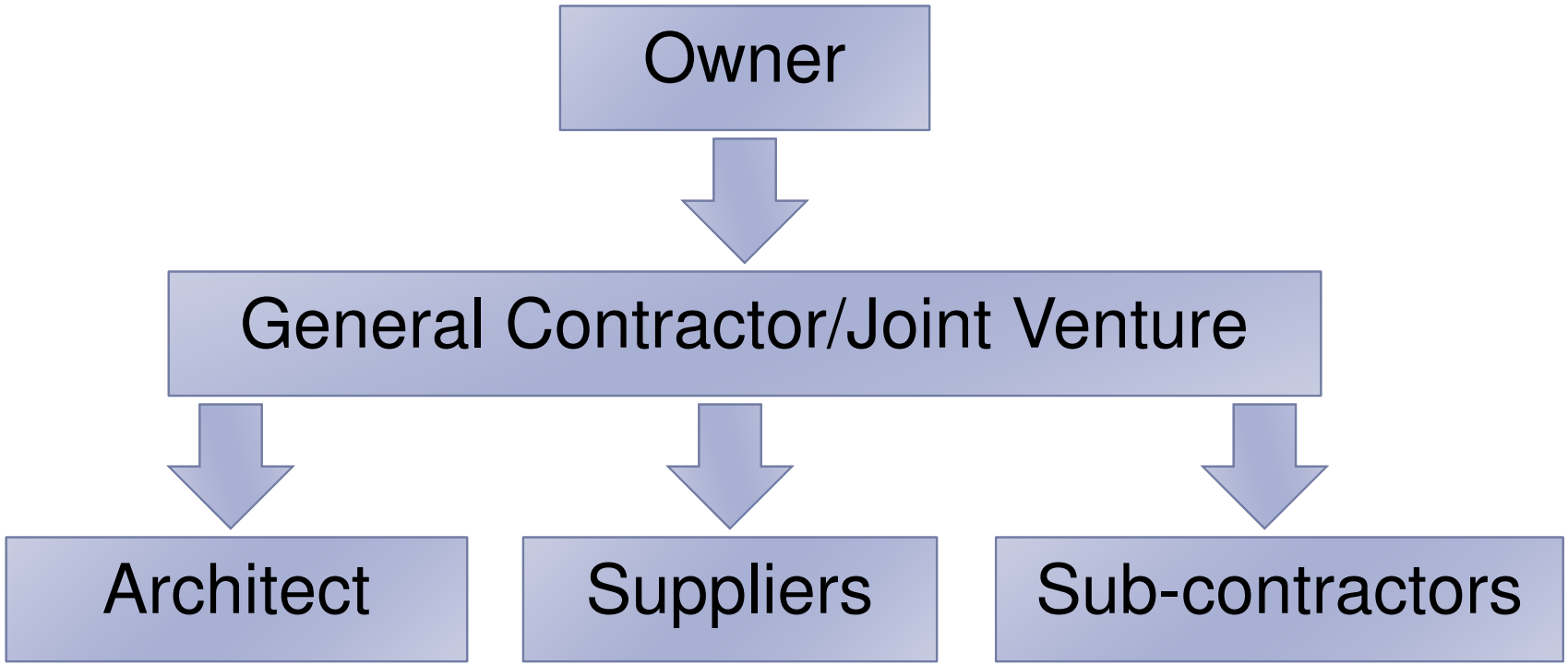
Fast Track

- Compresses the time between start of design & construction completion
- Works well on relatively large projects
- Can be adapted for competitive bid or negotiated contracts
- Segments of construction documents must be completed in sequence
- Separate contract is awarded for site excavation as soon as size, shape, and depth of the foundation is determined

Fast Track

- Excavation can begin before a detailed design is completed
- Requires careful estimating
- Assure funds are sufficient for the whole project
- Restricts the designers ability to incorporate desired changes into the project after the initial construction projects are awarded

Design-Build



Design-Build

- One firm designs and constructs the project
- Construction begins as each segment is designed
- Design and construction phases overlap
- Reduced delivery schedule
- Saves time, therefore saves money
- Controls cost-price of the contract is established early in the design process
- Used to minimize project risk to owner

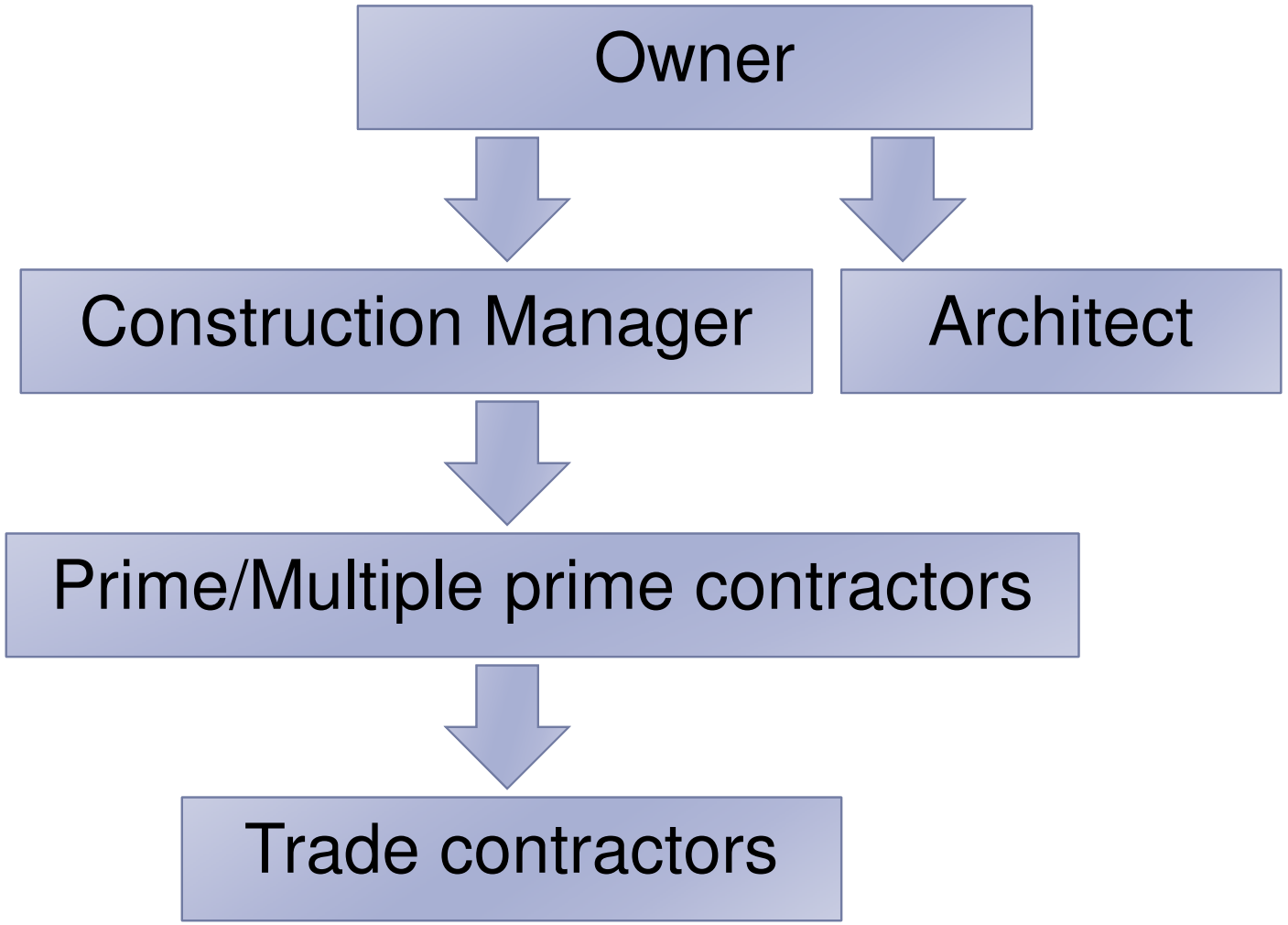
Benefits to owner

- Saves time
- Early agreement on cost and schedule control
- Less “finger pointing”
- Reduces change order liability to owner

Risks to owner

- Fast track eliminates integrated design
- Must have right team
- Potential loss of control of project
- Decisions by builder may lead to dissatisfaction and adversarial relationship

Construction Management



Characteristics

- Owner hires, under two separate contracts,
  - Architect to design the project
  - Construction Professional-"Construction Manager" (CM) who works with design team to ensure design can be built for reasonable cost, and that contractor can understand drawings and specs

Construction Manager

- Generally does not perform construction work
- Is an agent of the owner
- May be engaged in lieu or in addition to general contractor
- Engaged as either:
  - (a)"Agency Construction Manager"
  - (b)"Construction Manager at Risk"

(a) Agency Construction Manager

- CM acts as an agent or consultant to the owner.
- CM has no legal responsibility for actual construction performance
- Has no prime or sub-contractors
- Manages general contractor or multi-trade contractors
- Offers advice without potential conflicts of interest

(b) Construction Manager At-Risk

- Acts as a General Contractor
- Assumes responsibility and liability for construction work
- Responsible for means, methods, and sequence of construction
- Has ultimate authority over the trade contractors

Turn Key

- Differs form other construction methods in financing
- Contractor arranges for and obtains all necessary construction financing
- Upon completion of the project, the contractor exchanges the title of the building for either full payment or an agreement for future payments

Design/Build/Finance (DBF)

- One contractor has the single responsibility for
  - Design,
  - Construction and
  - Financing of the project.

Build/Operate/Transfer (BOT)

- Were developed a means for involving private developers in government infrastructures projects.
- Many developing countries now see this approach as the best way to provide basic infrastructures.
- One contractor has responsibility for design and construction, and will operate the project for a period of time, then transfer the facility to the client's organization.
- Financing is typically involved although ownership through this period of time is maintained by the client.

Build-operate-transfer (BOT)

- Arrangement of BOT projects:

1. Build

1.1. Initiation,

1.2. Design,

1.3. Management of project,

1.4. Carrying out the procurement,

1.5. Construction (build the project),

1.6. Finance (getting loan and debt services),

Build-operate-transfer (BOT)

2. Operate

2.1. Management and operation,

2.2. Maintenances,

2.3. Delivery of product and/or services,

2.4. Receive delivery payment,

3. Transfer

Handover in operating condition at the end of contract period to the responsible sector/agency.

Build/Own/Operate/Transfer (BOOT)

- One contractor has responsibility for:
  - Design,
  - Construction,
  - Ownership and
  - Operation for a period of time,
- After this period of time the ownership and operation are transferred to the client's organization.

Build/Own/Operate (BOO)

- This is the privatization of the public sector. Specifically, one contractor has the complete responsibility for:
  - Designing,
  - Building,
  - Owning and
  - Operating a facility,.

Questions?

Contact:
Dr. Ahmed Elyamany
019-4100-824
a2hyamany@yahoo.com