

Contracting Structures & Pricing Mechanisms

by

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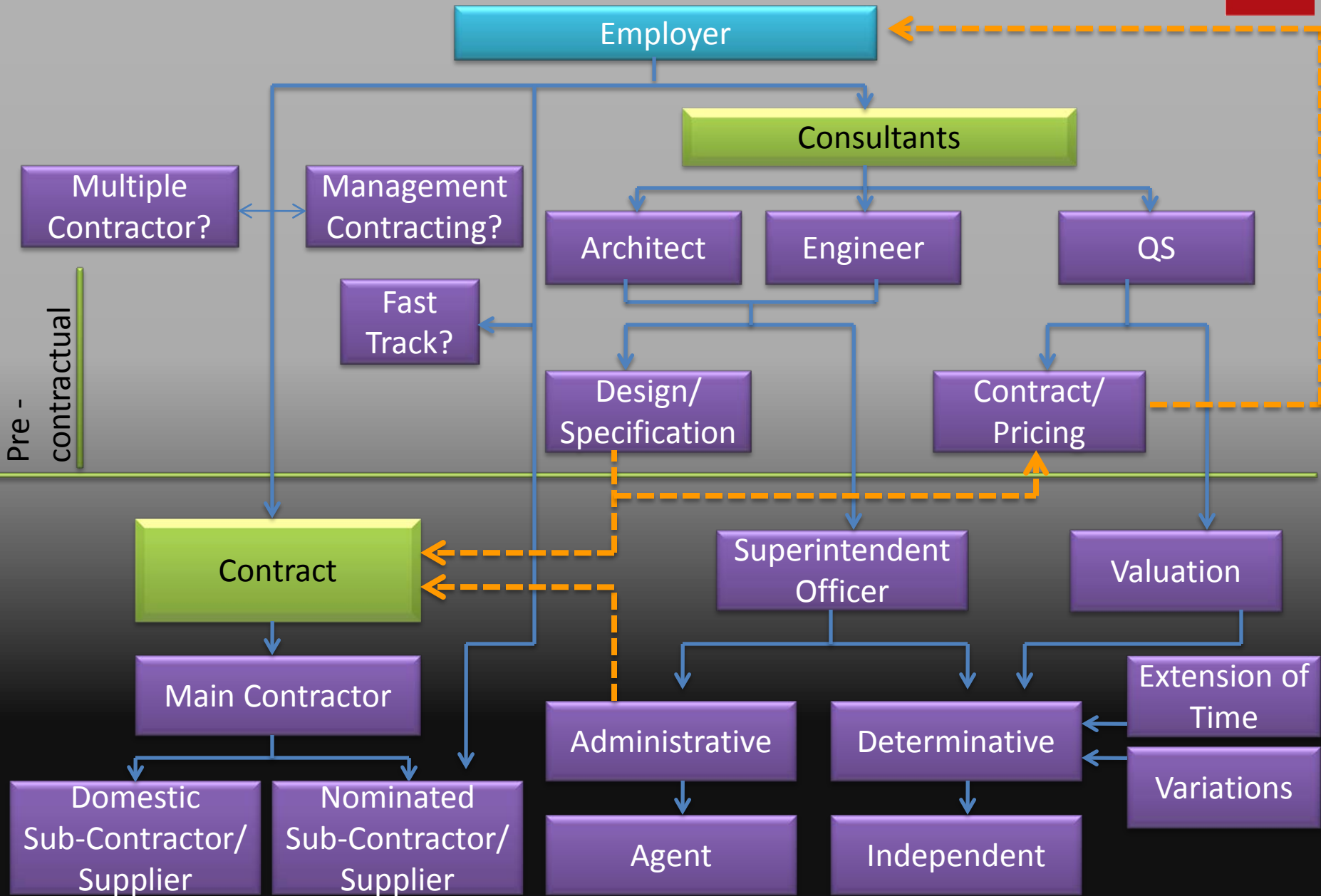
Pre-Contracting

- Inception & Feasibility
- Design (traditional) / Concept (package deal)
- Authority Approvals
- Determining Procurement & Pricing Structure
- Determining Other Risk Allocations
- Conditions & Contractual Documents
- Tendering

Procurement Structures

- Traditional
 - Multiple
 - Fast Track
 - Management Contracting
 - Term Contracts
- Package Deals
 - Construction Management
- Multiple Contracting Structures
- PFI
- Partnering

Traditional



Pre - contractual

Traditional Structure

- Design separated from Construction
- Employer/Consultants Design
- Contractor – Build Only
- Consultants Administrates Contract
- Contractor Temporary Works/Build-ability
- Contractor Duty to Warn of Design Deficiencies?
- Contractor uses Domestic Sub-Contractors

Traditional Structure

- Employer nominates specialist sub-cons
- Contractor employs NSCs
- Contractor co-ordinates works
- Consultants co-ordinates design
- Consultants manage interface between design & work [IFC drawings / RFIs / sketches & explanatory notes / revised drawings / shop drawings]
- Contractor responsible for work methods & temporary works

Std Forms - Traditional

- JKR 83' with Amendments & 07' [BQ / Lump Sum / NSC]
- PAM 1969 / 1998 / 2006 [BQ / Lump Sum / NSC]
- IEM 1989 [Civil Engineering & Sub-Contract 1990]
- IEM 1994 [M&E]
- CIDB 2000

Std Forms - Traditional

- FIDIC - Red Book (Civil Engineering)
 - Yellow Book (M&E)
 - New Red Book
 - Green Book (Short Form)
- JCT 1998 [Std. / Intermediate / Prime Cost]
- ICE for Civil Engineering
- JCT 2003 [Major Projects]

Multiple

- Cost benefit – direct contracts with subs
- Control at site
- Onerous: identifying distinct packages & contract needs
- Onerous: coordinating contractors
- Interfacing designs
- Appoint management & supervision teams - reduces cost benefit
- Risk of increased & varied claims
- Use lead contractor to coordinate?

Fast Track

- Design, tendering & construction overlap
- Needs strong integration and coordination
- Contractor Value Engineering
- Speed / Early Completion?
- Reduce Financing Cost
- Efficient Use of Resources
- Optimal & Cost-Effective End Product??

Fast Track

- Programming Problems
- Quality Control Compromised
- Claims, Variations, Extension of Time Oriented
- Productivity Killer
- Cost Over-runs
- Normally Disastrous
- Now it is common feature
- Contractor expected to have resources to deal with piecemeal instructions/information

Management Contracting

- Management Contractor
- Participation in Pre-Contract with Consultants
- 2 types – pure management, lead contractor
- Appoints Trade Sub-Contractors
- Employ Cost Reimbursable Pricing + Incentives
- Employ Prime Cost + Management + Fee Pricing

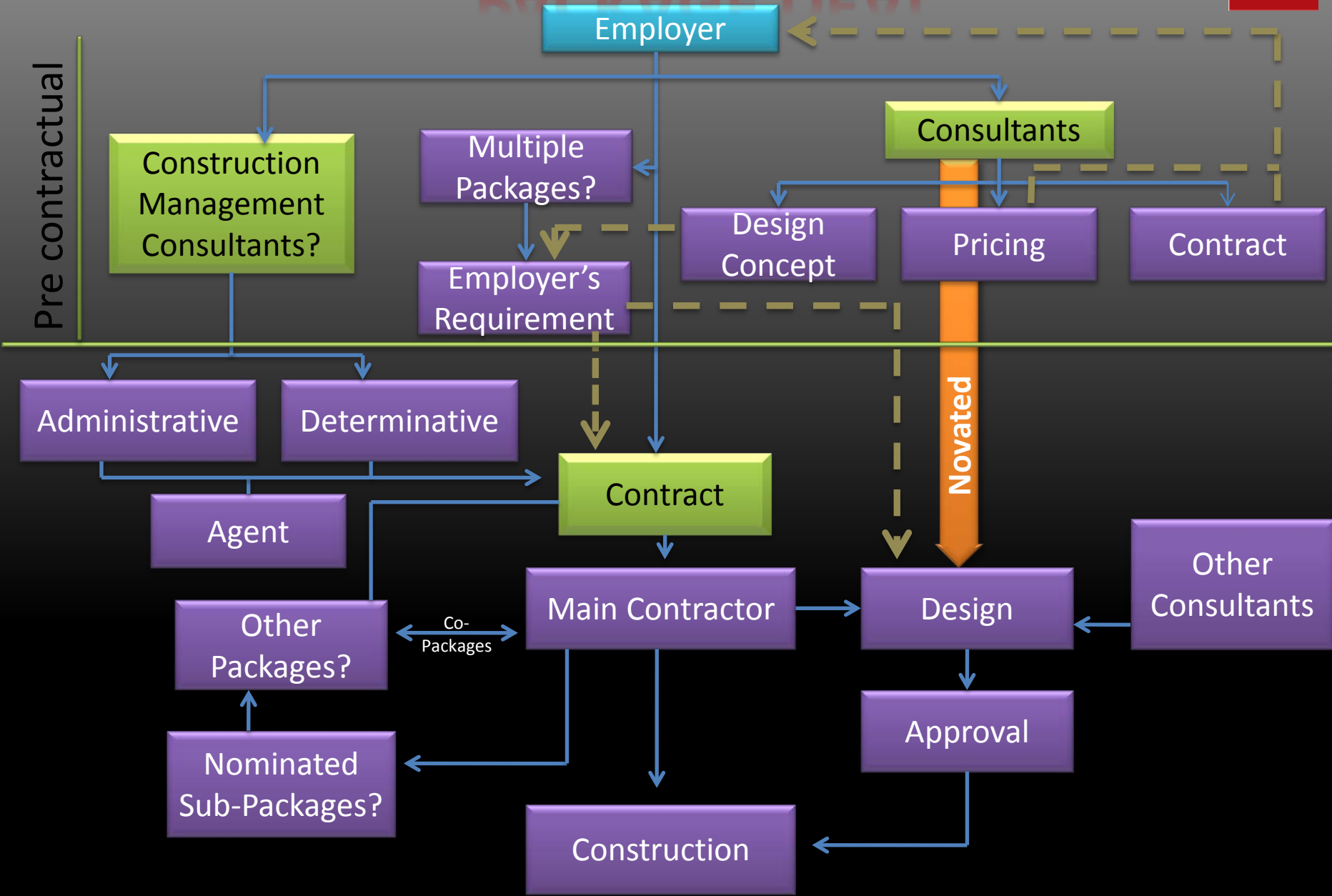
Term Contracts

- One Contract Set of Conditions
- One Central Set of Rates
- Individual Work Orders Issued Over Time

Standard Forms

- ACA – TPC 2005
- NEC – TSC 2005
- JCT 2005 (Measured Term Contract)

PACKAGE DEAL



Package Deals

- Design & Build / Construct
- Turnkey
- EPC Contract [engineering, procurement & construction]
- EPCC Contract [and commissioning]
- EPIC Contract [installation & construction]
- Multiple Package Deals
- Partial Package Deals

Package Deals

Contractor has to:-

- Develop Design
- Finalize Specification
- Initiate Material Procurement Process
- Tender Process for the Various Trades
- Finalize its Budget & Cost
- Obtain all other Permits & Approval to Commence Work

Then Commence Construction

Package Deals

Employer has to:-

- Design Concept + Feasibility & Budget
- Consultants assists in Employer's Requirement
- Preliminary Submissions
- Tender Evaluations
- Layout Plan Approval
(planning permission)

Package Deals

Post Contract Stage : Employer

- Audit Consultants
- Independent Checking Consultants
- Project Management Administration & Supervision

Sometimes Employer's Consultants:-

- Employed by Contractor
- Novated to Contractor

Turnkey

- Design
- Build
- Interim Finance
- Fitting Out
- Technology Transfer
- Maintenance
- One Lump Sum Payment

EPC/EPCC/EPIC

- engineering design
- labour
- manufacture / fabrication
- installation / construction
- testing & commissioning
- operator training
- technology transfer
- maintenance

Multiple Packages

- Multiple Design & Build or Turnkey
As Co-Packages

- Interface Problems between Designs
- Interface Problems between Works /
Processes

As Nominated Packages

- Design Responsibility Contingency Pricing

Std Forms -Package Deals

- PWD / JKR Form D3/T (2000 Edt) & JKR 07'
- Ministry of Finance / Treasury's Standard Conditions
- Bespoke Forms
- FIDIC - Orange Book, New Yellow Book (M&E Plant / Fort Building & Engineering), New Silver Book (EPC / PFI Turnkey – BOT model)

Construction Management

- Employer employs Project Management Co.
- Project Management Co. no privity with Contractor/Contractors
- Project Management – Active Role Pre-Contract
- Involved in Negotiations with Contractor
- QA/QC and Health & Safety Implementers / Inspectors
- Monitor – Progress, Cost, Variations, Interface, Co-ordination
- Employer's Watchdog / Reporter

Multiple Contracting

- Some Sub-Trades / Work Packages
 - Design & Build
- Some Sub-Trades / Work Packages
 - Traditional
- Interface Problems Still Exist
- Unless Distinct in Time & Process
 - e.g.. Substructure & superstructure

- BOT (build, operate & transfer)
- DBFO (design, build, finance & operate)
- BOOT (build, own, operate & transfer)
- Joint Venture Government / Contractor
- Multiple BOT / DBFO / BOOT within 1 PFI

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- The income or yield over the period of operation
= capital outlay + profit
 - Monopoly over the like type of project in the area
 - Upon operations expiry date, transfer back to Government
 - Profit guarantees? Inefficient Operation
 - Formula on Yield
 - Government's Right to Take Control

Partnering

- A collaborative approach – integrated team
- Contractual Commitments & Procedure:-
 - Maintain cost-efficiency & value engineering
 - Win-win situation by sharing cost savings
 - Mutual objectives are agreed
 - Constant Teamwork
 - Good Faith Procedures Adopted
 - Senior management & site management Partnering Charter” & incentive formula
 - Open communications & joint trouble-shooting

Std Forms - Partnering

- PPC 2000
- NEC Partnering Option X12 (2001)
- NEC 1, 2 & 3
- Be. Collaborative Contract 2003
(www.beonline.co.uk)
- GC / Works Amendments
- Perform 21 Contract

Lump Sum Pricing

- Agreed Price
- $\uparrow \downarrow$ Extent of Work = No Changes
- $\uparrow \downarrow$ Scope of Work = Variation
- \uparrow Limit of Work = Variation
- w/wo BQ + Drawing + Specification
- BQ just Estimate
- Limit of Works = Drawing + Specification

Lump Sum Pricing

- One-Off Payment at End
- Stage / Milestone Payment
- Interim Percentage Completed Payment
- Contract Sum Analysis
- Rationalization of Prices for Variations
- Fluctuation Clauses
 - Currency
 - Materials (Fixed Sums)

Effect of Lump Sum

- Tendering Process Longer
- Usually Attracts Higher Price : Contingency Pricing
- Contractor's Risk Higher
- Drawings & Specifications Certainty?
- All Information Available Provided?
- Attracts Claims Orientated Contractor

Cost Reimbursable

- Actual Cost + Fee
- Fee = Profit + Attendance + Overheads
- Actual Cost = Fluctuations / Percentage
- Fee = Fixed / Percentage
- Actual Cost = Re-measured
- Actual Cost = Subject to “Reasonable Incurred”

Cost Reimbursable

- Target Cost + Fluctuating Fee
- Target Cost \uparrow Fluctuating Fee \downarrow
- Target Cost \downarrow Fluctuating Fee \uparrow
- Fluctuating Fee = Formula
- Carrot & Stick Incentive Scheme
- Best Way to Control Cost Reimbursable

Cost Reimbursable

- Cost Uncertain Works
 - tunneling and soil extensive projects
- Emergency / Investigation Works
- Very Fast Track Projects
- Avoids Contractor Cash Flow Difficulty
- Requires Trust & Reliability
- Tight Control / Cost Audit Required

Re-measured Pricing

- Price = Fluctuations on Quantities x Rates
- BQ = Approximate Quantities
- BQ = Rates Determined by Contractor
- BQ = Scope of Works but Quantities can Fluctuate
- Schedule of Price = Variations
- Re-measured at the end : Physical or Take-offs from as-builts

Re-measured Pricing

- Safest Win-Win Approach
- Rates can Fluctuate?
- Material Price Index Fluctuation
(need rationalization)
- Formula increase/decrease if Quantities increase/decrease
- Where Quantities Remain Uncertain
 - soil / substructure piling
- Fast Track Project

Other Pricing Issues

- Prime Cost Items
 - Nominate Sub-Contractor or Supplier at profit + attendance fee %
 - Price to be Negotiated with Subs
- Provisional Cost Items
 - Priced Work Scope that may or may not be Required
- Inclusive Price Principle
 - All ancillary, necessary, implied work scope included in Price



The End

Thank You

Q & A