Alternative Infrastructure Delivery Models

Alain Jacquet
Outline

- The evolution of the construction contracts
- The traditional approach to the delivery of public infrastructure
- Alternative approaches
- The client as a driver of change
Civil engineering in the UK

There were no civil engineering works of significance in the UK after the collapse of the Roman Empire until 1768.

John Smeaton started the construction of the Clyde canal in 1768 providing a route for sea-going vessels between the Firth of Forth and the Firth of Clyde at the narrowest part of the Scottish Lowlands.

This 35 mile canal was completed in 1790.
In 1768 Smeaton set down his management scheme for the construction phase with detailed tables of responsibility for:

- the engineer in chief,

- the resident engineer and

- the ‘surveyors’ for the various geographical sections working under him.

This model is still used today:

**master - servant**
Sir Joseph Bazalgette’s standard form of contract for London’s major sewer projects and the embankments on the Thames 1860s was adopted by the Metropolitan Board of Works.


Based on master servant relationship
Collaborative contracts – the new approach!

The basic interaction between Engineer and Contractor has mutated over the last hundred and fifty years from ‘master and servant’ to a simple collaboration between two specialist contributors.

Dr Martin Barnes, CBE
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- Alternative approaches
- The client as a driver of change
# Traditional preplanned approach

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- **Design by employer**
- **Time line**
  - Access date
  - Defects Date
  - Completion Date
  - Construction (Contractor)

- **Procurement** *(Usually done by contractor)*
## Traditional preplanned approach

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### Time line

- **Access date**
- **Defects Date**
- **Completion Date**

**Design**

**Procurement** *(Usually done by contractor)*

**Master**

**Servant** *(Contractor)*

**Construction**
## Traditional forms of contract

- framed around - the **design by employer** contracting strategy
- **lump sum** contracts or **bills of quantity**

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<th>Design by employer</th>
<th>Contract under which a contractor undertakes only construction on the basis of full designs issued by the employer</th>
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<td><strong>Lump sum</strong></td>
<td>The Contractor undertakes to break the scope of work down into activities and price each activity as a lump sum, which he is paid on completion of the activity.</td>
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<td><strong>Bill of quantities</strong></td>
<td>The Contractor is paid an amount for the item of work in the bill which is the rate for the work multiplied by the quantity completed</td>
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“Fast track” preplanned approach

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**Time line**
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- Defects Date
- Completion Date
- Procurement

**Shorter project period**

(Usually done by contractor)
“Fast track” projects

What happens if all the work cannot be identified at the time when the contract is concluded?

- **Prime costs** – amounts stated which the contractor is to assume for materials or plant when building up his prices (adjusted when actual cost is known)

- **Provisional sums** for
  - work items not designed but identified including work by nominated and selected subcontractors

- **Budgetary allowances** for risk (uncertainty) and unforeseen items
Outline

• The evolution of the construction contracts

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• Alternative approaches

• The client as a driver of change
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### Alternative contract strategies

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- **Award contract**: Contractor responsible for later design stages. Consultant reviews contractor’s design against project brief.
- **Management contract**: Scope of work based on strategic brief.
### Alternative contract strategies

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**Award contract**

**Design and construct contract**

**Scope of work based on concept report**

Contractor responsible for later design stages
Consultant reviews contractor’s design against project brief
Alternative contract strategies

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Develop and construct contract

Award contract

Scope of work based on design development report

Contractor responsible for later design stages
Consultant reviews contractor’s design against project brief
Alternative pricing strategies

Cost reimbursable contract

- Wages and salaries
- Materials at open market rates
- Equipment at agreed rates, market related rates or percentage up or down on a hire list
- Subcontract costs

Fee includes profit and superintendence

Fee includes profit and company overheads
Alternative pricing strategies

Target contract

Used where the client wishes to share the cost risk

Total of tendered prices is the ‘target’
- controls productivity
- kept equitable by adjusting the target to accommodate scope changes and events that are the Employers risk etc
- target not reduced where changes to the scope of work proposed by the Contractor are accepted by the Employer

Paid on a cost reimbursable basis

Over-run (pain), under-run (gain) is shared per an agreed formula
Target Price (initial)
Target Price (final) adjusted for compensation events

Final “cost”

Contractor gain

Sharing of savings / overruns

Contractor pain

Target Price (initial)
Target Price (final) adjusted for compensation

Final “cost”

paul

payment to contractor at cost

Contractor gain

Contractor pain
Alternative pricing strategies

Framework Agreements

What is a framework agreement?

Framework agreements allow the employer to procure work on an as-instructed basis over a set term without necessarily committing to any quantum of work.
Principles

Framework agreements

- are entered into following a competitive selection process
- need to establish the following as a minimum:
  - the basic terms of the contract
  - the term of the contract (3 or 4 years)
  - the broad scope of the work which may form the basis of a package order
  - the basis by which contractors are to be remunerated for instructed work
  - the manner in which competition between framework contractors may be reopened (where more that one contractor is admitted to a framework agreement)
Essential elements of a framework agreement

A **framework contract** is only entered into with those who have the capability and capacity to carry out the likely work.

A **package** is works within the scope of work of a framework agreement which is instructed within a stated period of time.

A **package order** is an instruction to carry out a **task** and may only be issued within the term of the agreement.
A framework agreement is a contract where the terms of payment are agreed in the absence of a detailed scope of work.

**Pricing strategies**

- Lump sum
- Bills of quantities
- Activity schedule
- Cost reimbursable
- Target cost

**Not suitable** – require scope of work to price the work

**Possibly** – but what about productivity?

**Suitable** – as a cost parameters can be pre-agreed and target can be negotiated

Early contractor involvement possible with target contracts using design by employer or design, construct or develop and construct contracting strategy.
Tender margins, overheads and equipment and be paid on this basis

- Wages and salaries
  - Site overhead percentage

- Materials at open market rates

- Equipment at agreed rates, market related rates or percentage up or down on a hire list

Subcontract costs
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The Client must drive the process of change

Change to:
• Collaboration
• Integrating design and construction
• Active risk management in collaboration
• Focus as the development team
• Choose optimum solutions together with the contractor
• Develop longer term relationships
• Continuous budget control

Clients are the drivers of change and need to call the shots – it’s all about setting objectives, taking a strategic approach to procurement, making appropriate choices and tightly managing a well defined process
Thank you