Environment, Transport and Works Bureau
Technical Circular (Works) No. 32/2004

Reference Guide on Selection of
Procurement Approach and Project Delivery Techniques

Scope

This Circular provides a reference guide on procurement approaches and associated project delivery techniques commonly adopted for public works internationally to facilitate user departments in adopting a more rational and systematic approach in selecting the procurement approach and associated project delivery techniques for public works projects.

Effective Date

2. This Circular takes immediate effect.

Effect on Existing Circular

3. This Circular has no effect on existing circulars.

Background

4. The report of the Construction Industry Review Committee (CIRC), published in 2001, recommended a number of possible improvement measures which were aimed at lifting the quality and cost effectiveness of the Hong Kong construction industry. CIRC Recommendation No. 61 specifically...
recommended that client organisations in both the public and private sectors
should facilitate better integration in the delivery of construction projects
through wider adoption of alternative procurement approaches, while
Recommendation No. 44 of the Report recommended major clients to consider
the wider adoption of alternative procurement approaches to achieve better
value for money in construction procurement.

5. The ETWB has recently completed the Study on Alternative
Procurement Approaches for Public Works Projects in response to the relevant
CIRC recommendations. It is noted that a host of innovative procurement
approaches have emerged in the recent years, and the procurement approaches
adopted for construction projects internationally are very diverse. Some of the
procurement approaches may be practised around the world under slightly
different names but carry essentially the same features. In order to analyse the
basic components of the different procurement approaches in a systematic and
logical manner, these different approaches are generalised into four generic
categories. Under each category, the most common derivatives and variations
are also identified as sub-categories.

6. The key to a successful procurement exercise lies in matching the
right procurement approach and appropriate project delivery techniques with the
right contract in recognition of the specific requirements and restrictions of the
contracting parties such as:

- Type and nature of contract or client
- Level of expertise available in client’s organisation
- Level of information available
- Time available for design and construction
- Cost and accountability
- Value
- Risk and certainty factors
- Location and cultural considerations
- Investment strategy

7. It is recognised that the best procurement approach should be
capable of satisfying the majority of the client’s key objectives though
realistically it probably may not be capable of achieving all of them.
Practitioners in the construction industry had developed and adopted a variety of management tools and techniques to improve the performance of the generic procurement approaches during the delivery of the project.

8. The main purpose of this Circular is to promote a more rational and systematic approach in selecting the procurement approach and associated project delivery techniques while recognising the specific requirements and restrictions. Users of this reference guide are recommended to select the procurement approach and associated project delivery techniques which are best in terms of addressing their main concerns and specific needs.

**Generic Procurement Categories**

9. Procurement approaches are broadly classified into the following generic categories in accordance with the contractor’s involvement in the key stages of the overall development process:

- **Category I:** Designer Led
- **Category II:** Design & Construct
- **Category III:** Design Construct & Operate
- **Category IV:** Finance Design Construct & Operate

10. A chart illustrating the contractor's involvement in the key stages of the development process, which generally increases as the procurement approach moves from Category I where the contractor is involved only in the construction of the works towards Category IV where the contractor is responsible for the design, construction, operation of the completed works and financing (whole or part), is shown below:

<table>
<thead>
<tr>
<th>Procurement Category</th>
<th>Contractor’s Involvement</th>
<th>Procurement Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction of Works</td>
<td>= I</td>
</tr>
<tr>
<td>I</td>
<td>+ Design of Works</td>
<td>= II</td>
</tr>
<tr>
<td>II</td>
<td>+ Operation of Completed Works</td>
<td>= III</td>
</tr>
<tr>
<td>III</td>
<td>+ Financing</td>
<td>= IV</td>
</tr>
</tbody>
</table>
11. The allocation of key responsibilities for each of the generic procurement categories is illustrated in the following table:

<table>
<thead>
<tr>
<th>Party Responsible for</th>
<th>Category</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept Design</td>
<td></td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D/C</td>
</tr>
<tr>
<td>Design Development</td>
<td></td>
<td>D</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Contract Administration</td>
<td></td>
<td>D</td>
<td>D</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Operation</td>
<td></td>
<td>E</td>
<td>E</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>C/E</td>
</tr>
</tbody>
</table>

Legend:  
E = Employer  
C = Contractor  
D = Designer (appointed by the Employer)

12. The four generic procurement categories are briefly described in Appendix A with their major features, advantages and disadvantages tabulated for easy comparison.

**Procurement Sub-categories**

13. There are sub-categories under the generic procurement categories which are derivatives and variations developed to suit the specific needs of some clients. The major sub-categories, which may not be exhaustive are listed below:

**Category I - Designer Led**

- Lump Sum Contract (with Bills of Quantities or with Drawings and Specification)
- Remeasurement Contract
- Term Contract
- Prime Cost Contract
Category II - Design & Construct
• Employer's Designer Novated
• Independent Designers
• Contractor's Designer

Category III - Design Construct & Operate
• Design Build Operate
• Prime Contracting

Category IV - Finance Design Construct & Operate
• Private Finance Initiative (PFI)
• Public Private Partnership (PPP)
• Build Operate Transfer (BOT)

Project Delivery Techniques

14. Over the decades, practitioners in the construction industry had developed and adopted a variety of management tools and techniques to improve the construction process. Whilst some of the techniques may not be as effective as they were intended to be, they are nonetheless reflections of the industry’s desire to address long known and recognised problems. The commonly adopted project delivery techniques practised in the construction industry worldwide can broadly be categorised into the following six groups:

• Non-contractual Project Delivery Techniques - Partnering
• Contractual Project Delivery Techniques - Guaranteed Maximum Price, Target Cost, Construction Management, Incentivisation, Revenue Sharing and Contractor Designed Portions
• Project Design Improvement Techniques – Life Cycle Costing, Environmental Assessments and Buildability Rating System
• Supplier/Contractor Management - Supply Chain Management, Supplier Benchmarking and Performance Assessment Scheme
• Techniques for General Application - Value Management and Risk Management
• Dispute Resolution Mechanisms - Dispute Resolution Advisor, Dispute Resolution Panel, Expert Determination, Mediation, Adjudication, Local Arbitration and International Arbitration

15. The first two groups (Non-contractual Project Delivery Techniques and Contractual Project Delivery Techniques) involve processes which can run in parallel to the main procurement process, one being non-binding and the other underlaid with contractual status. The third group (Project Design Improvement Techniques) concentrates on techniques which improve project design, whereas the fourth group (Supplier/Contractor Management) focuses on the management technique used between supplier and contractor. The fifth group (Techniques for General Application) relates to the widespread management techniques for general application and the last group (Dispute Resolution Mechanisms) covers the various dispute resolution methods.

16. The project delivery techniques have been classified into groups to reflect their basic objectives or benefits. These techniques are “add-ins” to the underlying procurement approach. Whilst many of these techniques can be used together, there must be a balance between adopting too many techniques and the additional resources associated with their implementation. It is therefore recommended that each option be carefully considered before adoption and only those which will really benefit project delivery are adopted.

17. The major features and possible benefits of the commonly adopted project delivery techniques are summarised in Appendix B.

Performance Tables

18. The two tables at Appendix C show the typical levels of performance of each of the major procurement categories and project delivery techniques in respect of the six major selection criteria, namely cost, time, quality, risk, management efficiency and contractual security. Users of these tables are recommended to select the type of procurement category or project delivery techniques which has the performance level in each of the listed criteria the most similar to their specific project needs. User departments may adjust the level of performance of a procurement category or project delivery technique based on their past experience and the nature of the project. User departments may also include additional criteria or remove inapplicable ones to cater for the specific needs of their contracts.
Selection Process

19. The selection process is usually carried out in three stages:

Stage 1 - Selection of the generic procurement category;

Stage 2 - Selection of a sub-category; and

Stage 3 - Identification of major areas requiring improvement in performance and selection of optional project delivery techniques to address these identified improvement areas.

20. Stage 1 involves selecting one of the generic procurement categories which meets the majority of the requirements by ranking them in respect of the selection criteria as shown in the performance tables at Appendix C, or other additional criteria considered relevant to the specific requirements of the contract.

21. Stage 2 then involves selecting the most suitable sub-category within the main procurement category.

22. During Stage 3 of the process, the user may consider the introduction of project delivery techniques to improve the performance of the selected procurement category. Each of the project delivery technique may have a different impact on more than one aspect of the overall procurement approach, and some of them may actually have a negative impact in certain areas. Through a series of trade-offs the most acceptable mix of procurement route and associated techniques can be established to suit the particular contract.

Guidelines

23. The Project Manager appointed to manage a project under the Public Works Programme Information System should be responsible for the selection of the procurement approach and associated project delivery techniques at an early stage of the project. The selection process should be well documented and the Project Manager should seek endorsement from the Programme Manager of the project on the selected procurement approach and associated project delivery techniques.
24. The department may identify certain types of straightforward and simple contracts to go through the selection process once and pre-define the procurement approach and delivery technique(s) which will become applicable to these types of contracts in future. The department may also follow their own internal procedures in selecting procurement approaches and associated project delivery techniques provided that such procedures do not deviate materially from the selection process promulgated under this Circular.

25. Should a certain procurement approach be identified to be suitable for a particular contract but there may be restrictions in existing policies or that a suitable form of contract is lacking, ETWB stands ready to join efforts with the department in obtaining policy approval and developing procedures and necessary documents. We will also make use of the ETW Group Intranet Portal to share information and experience.

26. This reference guide has been designed to assist users in selecting the most suitable procurement practice and project delivery techniques for a specific contract. It acts as a guide through a deliberation process in a systematic manner but does not intend to generate a definitive answer or solution in a mechanical manner.

( C S Wai )  
Deputy Secretary for the Environment,  
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