

THE FUNDAMENTAL PRINCIPLES OF BOT CONTRACT DESIGN

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ABSTRACT : Contract design plays a key role in the life cycle of BOT project. All project management activities and operation processes are arranged in consistence with the document of BOT contract which the public sector ensures that the respective roles and responsibilities set out in the contract are fully understood and fulfilled to the contracted performance criteria. With limited theories to deal with some fundamental issues of BOT contract design, we try to collect data from case studies and formulate several practical principles. The conclusions presented in this paper are analyzed from two cases, one is based on an early case in the United Kingdom, and the other based on the Taiwan High Speed Railway case. The purpose of this paper is not about covering all legal issues about BOT contract design, but rather, our work provides common considerations applicable to the contract parties of a broad range of BOT contracts. The results in this paper shall propose some fundamental principles of the BOT contract design.

Key words : contract design , risk management , performance criteria, project management

1. INTRODUCTION

Historically, build-operate-transfer (BOT) processes were concession-based deals that catered to clients with limited operational experience. BOT procurements are often for services that are indispensable to the public. The absolute necessity to deliver these services has led to unusual contractual requirements within BOT contracts. Consequently, there are a number of legal issues that need to be identified and analyzed.

Throughout the life of the BOT contract, public sector parties are responsible for monitoring the compliance of private sector companies with contractual obligations. Prior to awarding contracts, tendering parties follow standard procedures; two of the most important steps are the “value for money test” and the “financial plan”. In cases where BOT contracts employ overly optimistic projections, compliance-related problems ensue.

Therefore, it is crucial to take into consideration the information asymmetry and incomplete contract problem during the contract design process. We can neither write contracts that consider everything possible, nor write contracts that ignore the opportunism tendencies. With limited theories to deal with the fundamental issues above, we will aim to collect data from selected case studies and formulate practical principles from them. The objective of this study is to propose certain fundamental principles of the BOT contract design through the use of case studies.

1.1 The Scope of Research

As contract design related performance issues arise within the operation period, here we study the Royal Armouries case in UK for the principles in contract design. We also analyze the THSR case because it provides useful insights about BOT financial renegotiation during after construction has commenced. Although a typical BOT

contract contains agreements between many contract parties, this paper only focuses on the core relationship between the Public Sector, End-users and the Project Company as shown in Fig. 1.

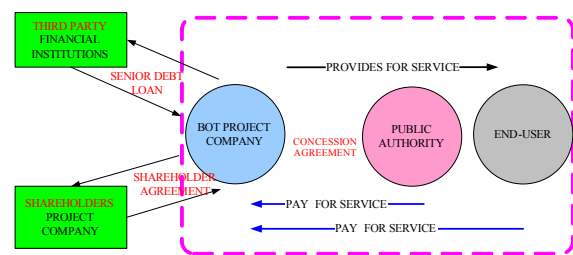


Figure 1 The Scope of This Research

1.2 The Characteristics of BOT Contract

During the procurement phase, the Public Sector and bidders are seeking the best deal; this should be the time to identify the framework for the future relationship with the winning bidder. The selected bidders should be made fully aware of what legal structures have been established within the Public Sector, particularly with respect of roles and responsibilities. Due to the long life cycle of project, there will also be a need to manage any foreseeable changes, for instance, changes in the law and technical developments.

1.3 Risk Management

Government is responsible for a wide and diverse range of activities including delivering services to the public. All of these activities involve some form of risks. The Treasury of the United Kingdom published *Management of Risk - A Strategic Overview* which defines risk as “the uncertainty of outcome, within a range of potential exposures, arising from a combination of the impact and probability of potential events.” A competent public sector has a systematic process for evaluating and addressing the impact of BOT-related risks in a cost effective way and

having staff with the appropriate skills to identify and assess the potential for risks to arise.

2. CONTRACT DESIGN

Hart and Holmstrom (1987) present a survey, an extensive theoretical literature devoted to the characterization of optimal contracts, and predict that contracts should be highly elaborate. However, most contracts are surprisingly simple in practice. They tend to be incomplete, containing gaps that must be filled through renegotiation or legal intervention. Therefore, the contract should always specify the procedure for handling disputes in detail.

BOT contract design itself is a distinct activity which is derived from the process of negotiation. It should be considered thoroughly and planned for from the beginning of the procurement. The contract should define the basis for the future long term operational and managerial relationship between the Public Sector and the Project Company. A list of the skills and competencies should be considered and attached as an Annex.

2.1 General Principles

In a variety of economic relationships, the parties employ contracts involving financial reporting and auditing to share the outcome of related project. Financial reporting and auditing thus provide evidence to one party concerning both the actual payoff and the level of input or effort provided by the second party. The economic consequences of contractual incompleteness have been explored by Grossman and Hart (1986) and Hart and Moore (1988). The common justifications given for contractual incompleteness and simplicity are bounded rationality, asymmetric information and transactions costs (Spier, 1992).

Effective contract design depends on getting the contract right from the beginning with full disclosure. Where contracted standards are not fulfilled, the Public Sector will apply mechanisms established in the contract to rectify any poor performance. Contract design and monitoring procedures should be kept simple for both parties in order to maximize present and future effectiveness of the contract. Over-complex legal terms and technical words are likely to be costly to administer and painful to enforce.

2.2 Contractual Relationship

BOT contracts normally feature long terms and early termination clauses that are activated by poor performance. When it occurs, early termination reflects major systemic failure. Such an event presents the Public Sector with a huge trouble of how to ensure the continuation of those services to the public. The aim therefore should be to establish a good contractual relationship in which both sides are open, share information fully and cooperate together to solve problems. Furthermore, the precondition of good relationship is based upon a fair negotiation position rather than a buyer-seller oriented relationship.

2.3 Performance Measurement Provisions

Step-in clauses entitle the public sector to be able to intervene earlier in the event that the private sector is not delivering service to the agreed performance standards. In extreme circumstances, such a right can be a trigger for the contract termination before contractual duration. In order to trigger a step-in clause without discrimination, BOT

contract should contain a reasonable system to measure the private sector's performance. Due process should also include a value for money analysis and employing an impartial 3rd party to verify the quality of performance. Value for money (VFM) is aimed to achieve the optimum combination of whole life cost and quality to meet customer requirements. Within a VFM framework, evaluation is commonly directed at the following factors: economy, efficiency and effectiveness.

3. CASE-STUDY ANALYSES

3.1 Taiwan High Speed Rail (THSR)

The first BOT project in Taiwan awarded to Taiwan High Speed Rail Corporation (THSRC) included the construction and operation of the HSR, the management of subsidiary commercial enterprises, and the development of the five main stations areas in Taoyuan, Hsinchu, Taichung, Chiayi, and Tainan. The HSR line runs approximately 345km from Taipei (north) to Kaohsiung (south), the route is shown in Figure 2. On behalf of the Ministry of Transportation and Communications (MOTC), the Bureau of Taiwan High Speed Rail (BOTHSR) selected THSRC as the preferred bidder in 1997. The THSR Project is the largest transportation infrastructure initiative in the world to-date, and the whole plan budget is about US\$15.5 billion dollars. THSRC completed the concession negotiations with BOTHSR in 1997 and secured a total of US\$10.5 billion dollars worth of credit by signing the Tripartite Agreement and the Credit Loan Contracts with a syndicate banks in Feb. 2000.

The primary goals of BOT concession included the Project company (THSRC) :

- completing the project on time, within budget;
- providing a sound operation system;
- developing station areas ;
- creating a high-tech image of public construction ;
- enhancing domestic construction skills and management ;
- laying a foundation for the domestic track industry.

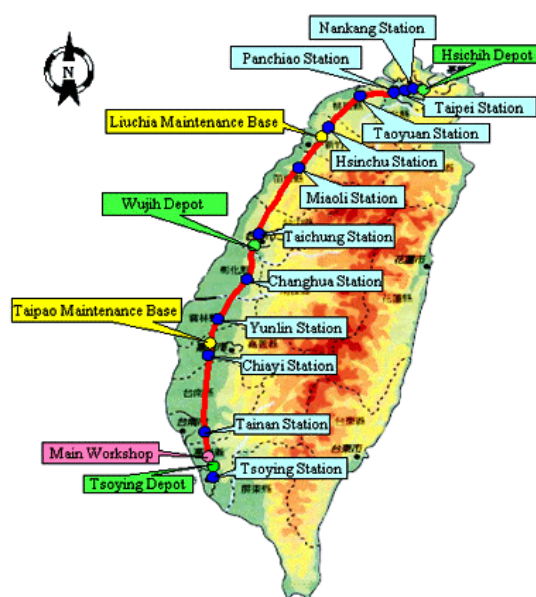


Figure 2 THSR Route

3.1.1 Financial Planning and Default

THSRC was founded by five prominent local business groups, Continental Engineering Corporation, Evergreen Marine Corporation (Taiwan) Ltd., Fubon Insurance Co., Ltd., Pacific Electric Wire & Cable Co., Ltd., and Teco Electric & Machinery Co., Ltd., committed to have investment 51%. In its proposal, the public sector would not have to spend anything on the project except for US\$3 billion for the procurement and development of land plus about US\$1.1 billion for the construction of roads linking the stations. THSRC also promised to pay NT\$108 billion back to the government during the 35-year franchise period, after which all of the railway's facilities are to be transferred to the government. However, these commitments have not been honoured by the THSRC, leading to increasing government participation in the monumental project.

THSRC blamed delays in processing investors' pledges for its failure to meet an extended deadline to raise NT\$6 billion by the end of March 2005. A domestic consortium banks led by Chiao-Tung Bank has frozen further lending to THSRC until the company finished its task in raising the NT\$6 billion. According to the terms of the loan agreement, the delay in reaching the fundraising target means that THSRC has to pay a fine of about NT\$100,000 per day until it has shown its money. In fact, this is the 10th time THSRC has delayed its fundraising schedule for the project. However, THSRC refused to release all the financial details and declared that it is not a publicly listed company so far.

The Taiwan DPP government treats the investment in the HSR project is one of the most important drivers of domestic investment. So far THSRC has received NT\$226.9 billion from a syndicate loan. By the end of February 2005, construction was 82.1 percent complete, and the debating bullet train had not been tested at speed of over 120kph yet. Concerning the list of 26 technical problems that remain unsolved, THSRC is still working on solutions with the Taiwan Shinkansen Corp, the contractor responsible for the high-speed railway's mechanical and electrical systems.

3.1.2 Litigation and Arbitration

Eurotrain, a joint venture between rail giants Alstom of France and Siemens AG of Germany, proved it was ready to build Taiwan's US\$14 billion HSR project following the successful test-run of its integrated train system in Germany in May 1998. The THSRC had awarded its electrical and mechanical biddings to Eurotrain, but later decided to switch to the Japanese systems. *Business Weekly*, a leading Chinese-language magazine, states the Japanese have presented a hard-to-turn-down proposal which includes export credit in yen (yen interest rate is only two percent while it is about seven percent in US dollars); unconditional technology-transfer and technical assistance in civil construction; as well as Shinkansen's smaller tunnel cross-section will save the civil construction cost several tens of billions, the magazine says.

In order to stop the deal between THSRC and Shinkansen, Eurotrain has tried to get an injunction from Taipei District Court with two years of effort but failed. In response, Eurotrain has taken its legal complaint action from an international court and the request of US\$800 million for

compensation has been supported by the court in 2005. In addition to the financial difficulty, the litigation result hits THSPC again. Whether THSRC could provide the train service on October 2005 as scheduled or not is still a challenge.

3.2 The Royal Armouries

The Royal Armouries originally entered into a PFI contract with Royal Armouries plc (RAI) in December 1993. Under this contract RAI were to build a new museum which would allow the Royal Armouries to display a greater proportion of its collection. The Royal Armouries agreed to contribute £20 million of the £43 million cost of construction. Once construction was complete, RAI was to operate the new museum for 60 years. In return RAI would retain all the income the museum generated from visits by the public. The new museum opened in March 1996; however, visitor numbers were so low that it never made enough money to meet its operating costs and the costs of servicing RAI's debts.

Consequently, by early 1999 RAI's cumulative losses were estimated at £10 million, despite two refinancing by RAI. As part of the second refinancing in 1998 RAI's bankers, the Bank of Scotland, advised that it would not be able to make additional funding available to RAI after July 1999 if the financial problems persisted. Without the Bank's support, RAI would become insolvent soon. In response, therefore, in July 1999 the Royal Armouries negotiated a revised deal with RAI which ensured that the museum remained open. Under the re-negotiated deal the Royal Armouries took over responsibility for running the museum, while RAI retained responsibility for the provision of catering, car parking and corporate hospitality services at the museum.

3.2.1 The Forecasts of Visitor Numbers

There had been a lack of market interest in the deal when it was put out to the market and only one bid had actually been received. The actual number of visitors to the new museum was much less than Royal Armouries and RAI had forecast. However those forecasts were based on a certain pricing assumption and the consultants warned that the actual number of visitors would vary depending on the admission price charged. In considering future deals, the public sector should get impartial advice on the merits of a proposed deal before it is signed. In addition, if the project involves a high degree of commercial risk, the project needs to be financed with a high level of risk capital relative to bank debt. If it is necessary to proceed with a project in the absence of adequate levels of risk capital, the government should plan for the contingency that extra funding will be required.

3.2.2 Re-Negotiation

The National Heritage Act 1983 lays down a number of statutory duties with which the Armouries must comply,

so the Armouries' objective was to avoid the museum's closure. However, the Royal Armouries were not given access to RAI's financial records and there were disagreements between the two parties over issues which were of fundamental importance to the museum's future. In this case, the Royal Armouries did not meet their strategic business objective of becoming more self-sufficient. Surprisingly the Royal Armouries had no contingency plans in place, as they considered that the risk of the project's failure lay with RAI in the private sector.

In considering future PFI projects, therefore, the public sector should consider where the business risks ultimately lie and draw up their own contingency plans accordingly and how they will eventually exit from deals.

4. THE RESULTS OF CASE STUDIES

4.1 Transaction Cost and Contract-designing

Coase suggests two theoretical approaches to deal with the problem of transactions costs, one is the well-function of market itself (Coase theorem I) and the other is regulation by the government (Coase theorem II). Normative Hobbes theorem also shows the unique role of government, for instance, in order to minimize asymmetric information, it has the power to enforce contract parties to follow full-disclosure rules and result in reducing the uncertainty of bargains and negotiation well.

Our work not only could help the government to set its benchmark for building the BOT project legal infrastructure by formulating case rules as well as refining BOT-related regulations, but also show the issues which should be take into consideration during contract-design process.

4.2 Contract-designing and Project Management

All project management activities and operation processes should be outlined in BOT contracts that ensure compliance and establish performance criteria. The Association of Project Managers Body of Knowledge was developed in 1986 primarily to address all aspects of education and training of project managers in the UK. The Project Management Institute (PMI) set out in their Body of Knowledge (PMBOK) what they claim is the necessary guidance on the processes and knowledge required by practitioners involved in managing single projects. In 2000, PMI issued its Construction Extension to the PMBOK.

In the Construction, the PMI states that “*the extension supplements, modifies, reinforces and expands the profession's de facto global standard in an easy to use format for practitioners in the construction industry*”. The extension introduces four additional activity areas – *project safety management, project environmental management, project financial management, and project claims management*. In summary, BOT contract design shall incorporate the key aspects of project management and

entail negotiated terms. The activity areas of the PMBOK and the Construction Extension are shown in Figure. 3.

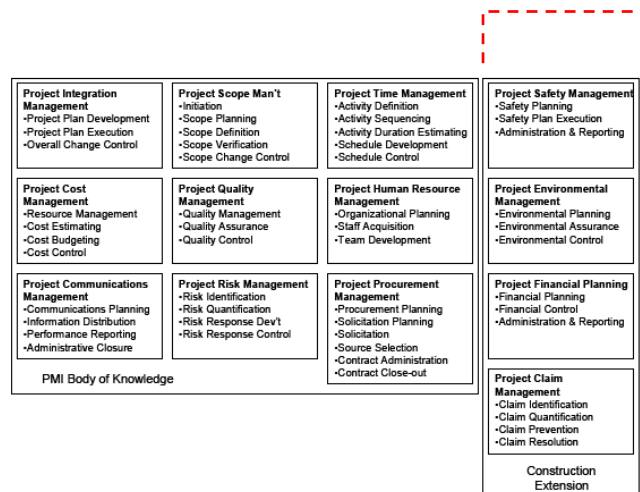


Figure. 3 PMBOK and The Construction Extension

4.3 The summary of case-study

In summary, effective BOT contracts should address all aspects of service delivery and payment. According to the results of the case-study above, the fundamental principles in contract design should include, but not be limited to the following factors:

- clearly defined output specifications which establish the required performance levels and associated information requirements for judging service performance;
- contingency arrangements in the event of failure to commence service delivery on time or other defaults by the Project company;
- managing changing issues during the life of the contract, including change of law and change of lenders;
- mechanisms for problem solving and dispute resolution;
- mechanisms for benchmarking and market testing;
- payment mechanisms;
- preservation of the Public Sector's ability to retender the original contract which is terminated;
- the right of the Public Sector to audit the Project Company, including its delegated institutions.

5. CONCLUSIONS

Failure to carefully design a contract could prove costly and cause losing the confidence of investors. Strengthening the legal infrastructure of a BOT project improves relevant legal institutions, and the capacity for individuals and institutions to implement, apply and enforce BOT-related laws. As the issues that need to be addressed are complex, and in some cases, entrenched in legal system, culture and judiciary, adoptive measures should presume a

long-term perspective, and focus on substantive incremental improvements. Our work is providing common considerations applicable to the contract parties of a broad range of BOT contracts, where different types of project have unique features that require specific forms of treatment.

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