PUBLIC SECTOR PROCUREMENT METHODS USED IN THE CONSTRUCTION INDUSTRY IN TURKEY

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Summary

The Turkish construction industry is active today but many serious problems still remain to be tackled which jeopardises this rapid development. The most serious problems being cost and time over-run of projects which are very common under the traditional procurement method. New alternative procurement methods have been imported from the West to solve these problems but no research has been conducted so far to confirm their appropriateness. This paper looks at a research, which is still at its initial stages, and includes a comprehensive analysis of the current situation in the Turkish construction industry with special emphasis on the existing procurement methods and their problems. It proposes a research model to assess the suitability of various procurement methods for different types of projects and client characteristics. The paper assumes the major variables that are built into the model under the headings "Communication", "Integration", "Control", "Environment", "Situation" and "Project" and links them all to "Project Performance". It is assumed that project performance will be measured both "Quantitatively" and "Qualitatively". A proposal is also provided on how this research will be followed up. It is hoped that, once completed, this research will provide some useful guidelines for the selection of suitable procurement methods for certain types of projects and clients in the construction industry in Turkey.

Background to Turkish construction industry

As in most countries, Turkish construction industry covers a special place in the nation's economy. Over the past two decades, Turkish Construction Industry has contributed heavily to the country's GDP, assisted in improving employment levels, helped in economic growth and participated in putting in order the balance of payments. Turkish Construction Industry, at the same time, represents the largest body of fixed capital in Turkey. Statistics show that nearly 6 percent of the country's GDP is spend on the construction industry and the labour force serving the industry represents about 6 percent of the total for Turkey. Furthermore, the Turkish Construction Industry is linked to a large number of supplementary industries such as glass, steel, cement, clay, etc. These supplementary industries contribute by about 60 percent towards the construction industry's turnover in Turkey (Sozen & Gritli 1987). The use of Turkish materials and goods in international contracts assists the growth of exports and contributes towards the increase of foreign currency assets which helps the national economy.

Construction works increased tremendously, specially in the past decade, to meet the heavy demand for buildings and the other infrastructure work due to speedy urbanisation and unprecedented levels of population growth.

Until 1970's, public sector organisations were the major clients in the Turkish construction market. But in the 1980's, the Turkish Government changed their policy towards gradual privatisation which was the result of their move to "Free Market Economy" (Liberal Economy). This policy meant that the Government would give priority to large infrastructure projects and encourages the private sector to invest in industrial and services sector. However so far, public sector remains the major client of the construction market.

The availability of additional funds such as Building Fund, which was established around 1983, Public Co-operation Fund and the creation of B.O.T. (Build-Operate-Transfer) model, have all enhanced the construction
activities and led to a "Big Bang". For the mentioned reasons, in 1992 alone, total spending on Turkish Construction Industry reached to 10 billion USD both in public and private sector [1]. Some of these spending were established through the major contracts won abroad. In the last fifteen years and up to June 1992, Turkish contractors signed contracts with a total value of around 21.5 billion USD, and executed successfully nearly 17.5 billion USD of these contracts (Turkish Contractors Union's 1992).

The Middle East, North African Countries and more recently the Commonwealth of Independent States are the major markets for Turkish contractors. The main types of projects won being hotels, health centres, hospitals, trade centres, housing complexes and industrial buildings. By 1993, 41% of the total projects undertaken (completed or under construction) by Turkish contractors abroad were in Libya, 29% in the CIS, 16% in Saudi Arabia, 5.5% in Iraq, 2% in Pakistan and the remaining 6.5% in Kuwait, Yemen, Jordan, Germany, Syria and Malaysia. South Asia and Pakistan have also emerged recently as new markets for contracting firms. At the moment, the total value of projects still under construction abroad is about 12 billion USD. In 1993 alone, Turkish contractors signed abroad contracts with a total value of around 2 billion USD (Cheetam & Jagger 1990).

In neighbouring markets, Turkish contractors have a number of advantages over their European competitors, one of which is the geographical location of Turkey which minimises transport costs, besides having relatively cheap and quality construction work force. In addition to the cultural and religious similarities which may represent an extra advantage to Turkish contractors. Therefore, the Multi National companies with access to high levels of technology and financial resources have made agreements (joint ventures) with Turkish contractors, in competing in major contracts in some of the above mentioned countries.

However, in recent years, and due to the new socio-economic and political developments the Construction Industry has been in crisis. The obvious reason being economic instability of the domestic market as a result of very high inflation rates. Some important projects could not have been started because of lack of funding and payments for many on going projects have been delayed for the same reason. The consequences of such stoppages is clearly very damaging to any economy.

Another major problem in the Turkish construction sector was the emergence of a new contractors called "build & sell contractor". The huge demand on construction activities specially in housing and commercial buildings, due to urbanisation and population growth, as mentioned earlier, led to the creation of private builders with limited technical knowledge and who only aim at profit maximisation. Lack of appropriate rules and regulations set by the government to control and monitor those private builders made things worse. As stated by Sozen & Gritli (1987), the outcome was low quality buildings and serious decline in overall productivity.

In conclusion, today, the Turkish construction industry reached to an active stage and top Turkish contractors may be very efficient compared to world standards but many serious problems still exists which jeopardises these developments and needs careful consideration and management. Looking at the level and speed of developments in the Turkish construction industry for the last twenty years, it can be said that these problems are temporary and bright days are close to come.

However, it is useful to emphasise that to reach to such bright days, the industry should identify its major problems and search for appropriate suggestions. Such solutions should be initiated by the Turkish Government and all the other parties concerned with the construction sector.

This research aims in highlighting such a problem and hopes to provide some guidelines for better overall results.

In recent years, new procurement methods started to gain importance in the Turkish construction industry. Besides the "Traditional" approach, "Design & Build", "Built, Operate & Transfer" and "Management Contracting" are procurement methods with increasing popularity specially by public sector clients but there is no single research to assess these methods and their efficiency.

The aim of this research is to examine the existing procurement methods in Turkey and to find out the suitability of various methods for different types of projects and certain client characteristics.

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Existing procurement methods in Turkey

According to Franks (1990), procurement is the amalgam of activities undertaken by clients to obtain a building. As mentioned earlier, Public sector in Turkey has the greater share of construction market compared to private sector. So this research will only investigate the procurement methods used by public sector clients. The procurement methods which are used in public sector projects in Turkey are as follows:

- Traditional
- Package Deal / Design & Build
- B.O.T. (Build, Operate & Transfer)
- Management Contracting

a- Traditional System:

The traditional system has been widely used in the Turkish Construction Industry for many years. In this system the client appoints an architect or a design group who might be an outsider, or the client may produce drawings internally, depending on the complexity and the size of the project and also on the level of technical knowledge of client's organisation. Tender documents, drawings, bills of quantities and technical and administrative list of conditions are sent to selected contractors to submit their bids. After a detailed cost study for each item of the project, the bid is submitted to the client by adding the profit margin. Finally, the client selects one of the bids by evaluating all the technical and financial conditions and enters into a contract with the winner.

b- Package Deal / Design & Build:

This type of procurement method may also called turnkey, package deal and contractor's design-and-build system. In this method, the client identifies his need for a building and states his requirements. Generally, client's technical representative may determine the needs and prepare primary tender documents. Contractors with the required pre qualifications may be able to bid for the project and propose a full design, costing and time schedule. After completion of the evaluation stage, the client enters into a contract with the winner. Design is fully developed when both parties reach to a final agreement regarding specification and price.

c- B.O.T. (Build-Operate-Transfer):

This is a new procurement method used in Turkish Construction Industry because of the lack of necessary funds for major Government projects. The Government allocates a land for a certain project and contractors with the required pre qualification, prepare their designs and proposal to meet the client's requirements and submit the proposal (tender) together with the source of financing the project. In other words, the client does not pay anything for the execution of the project. Client's technical staff or their representatives act as controller both in the execution and the operation period to confirm compliance with contract conditions and approve payments to contractors specially if the source of finance is outside the contractors organisation. In this system, after a specified period of time the contractor (it may be also a group of companies) transfer all the project to the client. The contractor (a company or group of companies), in this system may act as an investor.

Recently this system has gained great importance in Turkey for the following reasons:
- Turkey has limited financial resources to complete its infrastructure programmes and its major strategic projects such as powers stations, airports, sea ports and bridges. That is why, it prefers to use B.O.T. model for the mentioned projects (where foreign finance is provided).
- The injection of "Foreign Funds" into the country, to implement such projects, means job opportunities and improvements in Turkey's foreign reserves.

d- Management Contracting:

The "Management Contractor" takes the responsibility of co-ordination of the whole project from the beginning to completion with no direct involvement in design and construction. The aim is to meet the requirements of the client and to complete the project on time, at the appropriate cost and to achieve high quality standards. The management contractor undertakes the management of the works for a standard fee. All the work is divided into
subcontracting packages which are managed by the management contracting company. Recently some Municipalities have been using this system for major infrastructure works and for complex housing projects.

Some of these major projects, are run on joint venture basis with the involvement of foreign companies with management contracting expertise. Today, this procurement method is popular in Turkey with the involvement of many consulting companies.

**Problems in procurement methods in Turkey**

It is obvious that the traditional method of procurement requires the completion of the whole design before the tendering stage, which means longer overall duration of the project compared to other methods. The longer the project duration the higher the overall risks and uncertainties for Turkish investors. This is a very critical consideration for Turkish investors bearing in mind that inflation rate is very high in Turkey and may reach up to 100% in some years. That is why reduction in overall project duration is a key issue to the Turkish investor in construction. There are many cases where the final project cost may be twice or even three times more than its initial estimate due to huge cost increases.

On the other hand, the separation of design from construction works causes a 'them and us' attitude between the designers and the contractors. The client will always be the looser in such a separation, therefore a close teamwork relationship and clear communication links should be established to avoid such problems.

It is expected that "Management Contracting" system provides direct and strong communication links between the designers and the contractors and reduces the overall project duration. In Turkey, the client enters into contracts, through the co-ordination of the Management Contractor, either with a general contractor or with some specialist sub-contractors. In both cases the Management contractor acts as a facilitator between the parties reducing 'them and us' attitude and providing strong and rapid communication links between the groups, which may consequently reduces the overall project duration.

In Design & Build system, the probability of meeting the programmed timetable may be higher than other procurement methods but it requires a good project team. This is based on the assumption that both design and construction teams work under the control of one organisation which clearly means less communication problems. It is important to emphasise that this is only achieved effectively through close monitoring and adjustments of the overall programme from the beginning to the end.

The application of B.O.T. model is new for the Turkish construction industry. Its use is still limited to some major projects, therefore, a longer period of evaluation is needed before judging the effectiveness of the system compared to other procurement methods. However, in the current economic crisis in Turkey, the Government has to set clear rules, regulations and provide sufficient support to attract foreign investment into the Turkish construction sector.

To sum up the situation, it can be said that delays and cost over-runs are seen as common symptoms of trouble in the administration of procurement methods which consequently affects project performance, this confirms the views of Skitmore & Marsden (1988) and Cheetam & Jagger (1990). It is hoped that this research will provide some guidelines to identify the most effective procurement method.

**Research objectives**

The competitive nature of the building industry together with increasing client demand for sophisticated high quality buildings have meant successful contractors have to deliver projects at the right time, at the appropriate price and assure good quality standards. These factors are essential in providing clients with the high level of satisfaction they demand {Naoum & Langford (1990) and Skitmore & Marsden (1988)}. If these three criteria are not met this will frequently results in disputes between the client and the contractor which can increase substantially the cost of the project. Such problems have a severe impact on the construction sector and thus affect national growth. Turin (1973) suggested that if the capacity of the construction industry of any country did not grow faster than the Gross Domestic Product [GDP] the industry would constrain overall socio-economic development. Western European countries, for example, by the mid of 1980 exercised an increase in construction activities but than went into crisis due to high interest rates except for Germany where construction
activities are supported by the Government. The outcome of the crisis in the construction sector led these countries economies into crisis.

Thus it can be seen that, meeting these three criteria (i.e. time, cost & quality) has important national implications. One of the factors which determines the success in meeting these criteria is choosing of the appropriate procurement method for the construction process.

The aim of the research is to examine the existing Procurement methods in Turkey and to find out the suitability of various methods for different type of projects and client characteristics. In other words, this research will aim at:

a - Identifying and measuring the relationship between the selected project performance variables and particular procurement methods used in Turkey.

b - Establishing the extent to which such procurement methods can contribute to these problems.

**The research model**

It is important to establish a model as a useful research guide for studying the complex determinants of any system. To be able to achieve the research objectives and provide a rational procedure for the selection of appropriate project procurement methods for given projects in Turkey, a model was constructed after an intensive literature survey.

This research have identified the major problems associated with the building process which has an impact on procurement methods (mentioned earlier) and build them into the model under the major headings of "Communication", "Integration" and "Controlling" related variables. On the other hand, the research model includes the "Independent Variables" (such as environmental and economical changes) and the "Intervening Variables" (such as project variables) {all cited in Naoum (1991)). Research model is shown in Figure (1). The major headings come under three main interrelated groups, which are; 1- Procurement Methods used in construction industry in Turkey: This includes testing projects under Traditional, Design & Built, Management Contracting and B.O.T. 2- The Process: Includes the testing of the expected problems in the whole process frpm design to construction and comes under the major headings of Communication, Integration and Control. 3- Situational, Environmental and Project Variables (Independent and Intervening Variables). 4- Measurement of Project Performance: The assessment of project performance will be established from the combination of both quantitative and qualitative measurements. Quantitative measurement (objective assessment) will be the sum of time performance (to measure time overrun) and cost performance (to measure cost overrun). Qualitative measurements (subjective assessments) will be achieved by asking the client and/or the designers of their level of satisfaction with the quality of the project. It is hoped that by adding up both "Quantitative" and "Qualitative" indicators the overall project performance will be established. The technique utilised in this research will be similar to the one used by Mustapha (1990). It is generally accepted that the "Multi-determined" measure of project performance is essential to achieve more reliable results.

**Proposed research methodology**

This research is still at its initial stages and It should be emphasised that research model needs to be tested before any conclusions can be made. However, the following procedures are suggested for future work:

a) Public Sector Clients will be chosen for investigation because of their importance to the Turkish Construction Industry. Thus an in depth analysis of public sector client's operations will be carried out.

b) A pilot study will be carried out with professionals in Turkey to test the validity of the chosen variables to the Turkish construction industry. Having checked the variables, two sets of questionnaires will be set, one for the clients and the other for the contractors. The questionnaires will be undertaken through personally administered interviews by the authors. A representative sample with sufficient size will be selected including different types of project [representing all procurement methods in Turkey] to get statistically sound results. It is hoped that access will be provided to documentation related to the projects under investigation.

Note: Please see page 401 for Figure 1.
Conclusion

High inflation rates is a very important obstacle facing the rapidly developing Turkish construction industry. Therefore, it is vital to reduce overall duration of any project to make it attractive for investors. New procurement methods have been imported from the West to improve the situation but there is no research to support their suitability. This research is still at its initial stages and started with the examination of the developments in the Turkish Construction industry and details of the existing procurement methods and their problems. The research managed to build a comprehensive model to test the appropriateness of different procurement methods in Turkey and is based on an intensive literature survey of similar research in the West. Figure (1) provides the suggested relationship between the variables and project performance. The paper recognises the most important variables under the heading the "Process" which includes "Communication", "Integration" and "Control". These variables are assumed to be the most problematic areas in the building process. The model also confirms that "Environment", "Situation" and "Project" are vital variables which have an impact on project performance. It is assumed that the selection of appropriate procurement method can shape the performance of the project. Multi determined method of measurement has been suggested for the assessment of project performance as a reliable indicator (Mustapha 1990). The procurement methods developed and used in the West may or may not be very effective when applying to the Turkish construction industry without the necessary adaptations, that is what needs to be proven. This paper remains short of proving this case. However, It is hoped that this research, when completed, will provide guidelines for the selection of appropriate procurement methods for certain projects and clients working in the construction industry in Turkey.

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