

A study on Selection of the approval method in construction project management ANN

Abdul MatinDostyar*

Abstract

A structure project is a strategy to meet the specific needs of clients, regardless of theory, expansion or improvement of adequacy. Just when you choose another structure plan, instead of renting, renting or acquiring an existing area, there is a regular prerequisite for a customized action plan that expects to achieve explicit goals. Recognizing objectives and classifying them can be difficult work, described as a variety of accomplices that can be integrated into the client's affiliation. Due to the purchase in the construction sector, the elements that affect the technique are similar to the company, the need for acquisition, climatic conditions powers such as political, social and social. , natural, etc. Think of everything before choosing the acquisition method. The work in the proposal refers to the determination of the acquisition technique in terms of the various impact variables and the prior information for which ANN is used for the selection procedure. ANN is the most appropriate intelligent framework to determine a procedure that actually eliminates past information. The ANN framework includes some states that are information, performance, and hidden states. The information and the states / layers of performance are unique in the system and the masked layer or state can be unique or different according to the prerequisites of the framework or field being considered

Keywords:

Purchases, purchase techniques, purchase systems, artificial neural networks (ANN), structure of the building, construction project.

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1. Introduction

The acquisition systems of construction companies have not completely changed in the last 25 years. However, time and costs are huge so far (Smith and Love, 2001) [1]. In a response to reduce time and cost, the debate that may arise regularly and the likelihood of success, optional recruitment techniques, for example, consolidation and alienation (Love et al., 1998).). Not all types of acquisition strategies are suitable for specific types of businesses because the client's objectives and needs vary constantly (Skit more and Marsden 1988, Love et al 1997).

Many acquisition techniques have been created to manage the need to efficiently transmit building construction projects (eg, RICS 1996). An acquisition methodology describes the main methods to achieve the project's objectives (NSW, 2005). NEDO (1985) recognized seven steps for the effective acquisition of the structure:

1. Choose a corporate project manager.

*** Research scholar, Department of Civil, Noida International University**

2. Commitment of an essential council.
3. Concern over the choice of customer's prerequisites
4. Schedule the task reasonably
5. Choose the acquisition mode
6. Selection of associations to work for the client.
7. Designate a site or work on the redesign.

When the essential system for a project company has been implemented, the accompanying variables should be considered as an evaluation of the most appropriate acquisition technique:

Exterior factors

Consider the potential effect of the financial, commercial, innovation, political, social and legal elements that affect the client and your business, as well as the group of projects during the life cycle of the project.

Customer assets

The client's learning, the association's experience in obtaining real estate projects and the nature in which he works will affect the acquisition technique.

Project Features

The size, multiple nature, size and uniqueness of the company must be taken into account, as they will affect time, costs and risks.

Capability to compose changes–

Preferably, the customer's requirements should be distinguished at the beginning of the project. It is not always conceivable. The transformation into innovation can bring changes to become familiar with a project company. The transformation into extension entails additional costs and time, especially during development.

Cost issues

If security value is required, then the configuration must be completed before the development and configuration changes are initiated.

Timing

The requirement for majority projects is the one that must be carried out during a given period.

Procurement Systems

Purchase or purchasing frameworks can be delegated:

- Traditional (isolated);
- design and develop (coordinated);
- Management (grouped);

Traditional Procurement

By applying the traditional methodology, the company recognizes that planning work is often isolated from development, that experts are selected for the structure and control of costs, and that the contractor is responsible for the completion of the projects. work. This obligation extends to all works and materials, and includes all the work of subcontractors and suppliers.

Design and Construct Procurement

Through design and construction, a contract worker recognizes his obligation to some or most of the plan. There should be an express reference to this in the agreement, and the degree of obligation of the plan must be reliably stated as clearly as would be expected in the circumstances.

Management Procurement

Some variations of the purchase form of the current management, which incorporate; The contracting tables, develop the council and plan and supervise. There are no clear contrasts between these hiring strategies. Due to the will of the management, the temporary worker has legally binding direct links with each of the hired workers and is responsible for all construction work.

Objectives

- observe the effectiveness of public procurement strategies used for housing projects;
- recognize the factors that influence the determination of an appropriate supply method for housing projects;
- propose a methodology for determining the purchase strategy,
- Examine the acquisition technique chosen to reflect on the conditions and the project.

Problem statement

While it is necessary to address the various problems that affect the selection of government purchases, this study addresses in particular the selection criteria and the adequacy of procurement systems for housing projects. Mathonsi and Thwala (2012: 3583) highlighted the importance of architects, quantity surveyors, engineers and builders to promote the best value for money for construction customers, advising on the adoption of a strategy. Which best suits the objectives of the project. However, the construction sector has not yet reached a consensus on the most effective procurement strategy for housing projects.

In most cases for the selection of purchasing strategies, the information provided by the client based on certain parameters is not defined correctly, which makes them in fact undesirable. In the work, parameters such as the complete description of the project by the client are defined taking into account many parameters, such as the relationship between the work groups, current and future

Problems, environmental factors, political factors, etc. . The analysis of parameters is done through a validated technique that really works with the past data and considers the correspondence in the best case, which is called ANN (artificial neural network).

Literature review

According to Hughes et al. (2006) [3], argued that contracts of a singular amount may be less reasonable when speed is fundamental or when the idea of work is not very specific. In any case, a single-sum contract does not assign all the risks related to the task to the contractor, since it is not a fixed cost or an extremely high guaranteed value; The general agreement on a single dollar contract is subject to change and the instruments to modify the total agreement incorporate the following, as indicated by Love (1998).

- Dissimilarity;
- Temporary sums;
- Fluctuations;
- The costs of the subcontractors or designated suppliers;

- Legal fees; Y
- Fees for opening and proof of work.

In addition, they describe that an estimate contract is a "estimation" contract or a "deliberate and estimated" contract. Estimation contracts come in cases where the work structure can be described at a reasonable level of detail, but the true addition of the contract can not be resolved (Designing Buildings, 2017). The aggregation of the agreement is then determined based on the outcome of the development operation, given the "estimation" of the actual development work and the proposed rates (Hughes et al., 2006). The estimation contracts allow a solid start of the development on the site, before the completion of the structure and the work illustrations, and the changes in the work are moderately simple (Designing Structures, 2017). In any case, Love (1998) argues that the related hazards are unavoidable for the client because the costs of construction development work are uncertain.

A cost reimbursement contract, also known as an "additional cost agreement", is an authorized scheme in which the hired worker receives a reimbursement for all costs incurred in the execution of development work in the construction of Love et al., 1998). A cost reimbursement contract is used when the nature or extent of the work to be performed cannot be satisfactorily characterized at the beginning and the risks of the work are high (Designing Buildings, 2017). Therefore, the expenses for which the hired worker is entitled to be reimbursed must be clearly expressed in the agreement.

Research methodology

The phases which are to be pursued for the determination of the acquisition system, for which it is required to quickly characterize the ANN, are following

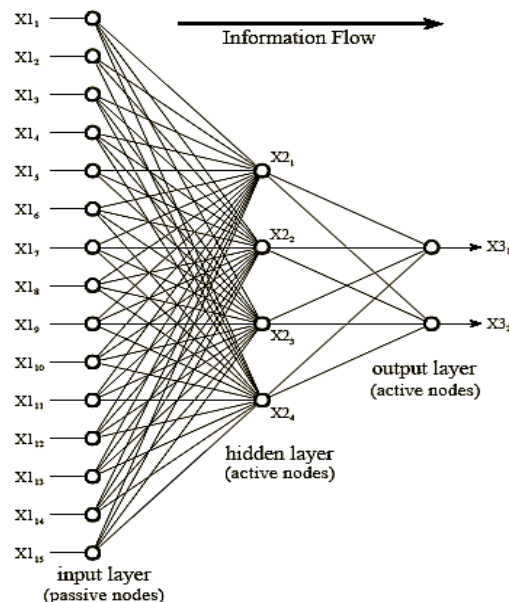


Figure 1: Working architecture of the ANN technique

Phase 1: Authentication of requirement - The achievement of a successful agreement is based on confirmation of the requirement of a commitment. This procedure should shine the incentive of the client or the business case of the business and should include all partners, including those who will go for a crime related to the business and the identity of the person legitimately associated with the use of the finished facility. The procedure must define and organize the objectives to be achieved by the task, as well as the parameters of the budget and the physical program.

Phase 2: Assessing the selections-- The construction of another office is probably not the best way to satisfy the interests of the client. Renting, renting, buying an existing office or expanding or modifying existing premises could result in elective and potentially less expensive arrangements. All options must be reviewed and evaluated at the appropriate time of the company's progress. After affirming the need and studying all the alternatives, it is necessary to create an increasingly precise file for the company. This will include thinking about the profit for the joint venture, the conceivable benefits for operational productivity or the flow of wages.

Phase 3: Procurement Strategy Selection-- The choice of a working group is a critical job. Colleagues should be selected based on the nature of their reputation, their reputation as comparable companies, their ability to take appropriate action and the scope of their positions. The client should feel comfortable with the way in which the chosen experts have treated the ideal technique. Once again, the client can expect a source of autonomous exhortation to facilitate the selection process, especially when it comes to evaluating sensitive packages.

The choice of purchasing acquisition method depends exceptionally on the corresponding parameters, such as the complete description of the client's tasks given many parameters, such as the connection between work meetings, current problems and future models, ecological components, political elements, etc. The investigation of the parameters is being finalized using the global strategy evaluated and approved, which takes full advantage of the past information and reflects on the best coordination, called ANN (Neural Artificial Network).

Stage 4: Project Delivery-- At the point where the working group was chosen, the company can move forward creating a basic structure to prepare illustrations and reports that represent the company, organizing the agreement, characterizing the indicators that must be respected and distributing tasks. During this time, the customer (or technical support administrator or task manager) must be:

- Make sure that the purchase of the land finalizes as planned, if this is fundamental
- Make sure that the plan procedure is stable with the deliberate summary
- Ensure that an internal framework of central leadership is established to avoid configuration delays.
- Maintain the broadest formed customer associations and establish an adequate financing structure to guarantee deadlines.

Results and analysis

For the analysis of the job description, a descriptive study is used where the parameters and factors to analyze are taken into account and evaluated with the proposed methodology and the traditional methodology. In all the works, the design and construction phases of the construction project are being studied. In addition, the work says a lot about performance and quality, because it is the housing project.

Table 1: Analysis based of dependent parameters.

Procurement Strategy related parameters	Traditional Method	Proposed methodology
Design	Contractor and owner	Design and construction considered by same party
Construction	Contractor	After proper design by designing party

Time	No proper evaluation	On time evaluation on the basis of certain external factors
Cost	No pre-close up	Properly evaluated at the time of design
Certainty of time	medium	High
Certainty of cost	medium	High
Price competition	High	Medium
Flexibility	medium	High
Quality	medium	High
Responsibility	medium	High
Risk	medium	Low
Contractor selection	By owner	Automated technique

According to the evaluation and the data shown above in the table, parameters such as cost, time, design, construction, flexibility, responsibility, risk, quality, etc. They are taken into account with a descriptive result based on the selected technique. In the case of the proposed methodology, the design phase, the construction phase and the selection of the contractor are carried out according to the predefined techniques. When it comes to choosing an acquisition strategy, we use ANN, which is really based on past data, inputs and predefined treatments and reduces the risk of costs and time.

Table 2: Analysis of time based factors in proposed methodology.

Parameters that affects time	Traditional method	Proposed methodology
Economic	Not defined	Pre-consideration
Commercial	Not defined	Pre-consideration
Technological	Not defined	Pre-consideration
Political	Not defined	Pre-consideration
Social	Partially	Pre-consideration
Legal Factors	Partially	Pre-consideration

During the study presented in Table 4.2, it was determined by factors that affect the waiting time for each project, mainly construction projects. Based on the evaluation carried out, the proposed methodology considers factors such as legal, technical, social, political, etc. For the success of the project on time

Table 3: Quality consideration related analysis.

Quality related factors	Traditional method	Proposed methodology
Capacity for temporary worker to include an assess plan	Average	High

improvement.		
Adaptable to suit modify instructions	Low	High
Single point duty regarding design and development	Low	High
Capacity to manage/react to location circumstances	Low	High

Table 4: Cost related evaluation.

Cost related factors	Traditional method	Proposed methodology
Fixing the total amount of the project before making the any bonds.	Medium	High
Shifting of amount related problems	Low	High
Focused offering in current market situations	Low	High

Table 5: Evaluation depends on satisfaction level.

Performance and expectation matching factors	Traditional method	Proposed methodology
Stakeholders' satisfaction	Average	High
Project related factors	Medium	High
Client related factors	Low	High
Project management related factors	Low	High
Construction material related factors	Medium	High
Construction machinery related factors	Low	High
Construction manpower related factors	Medium	High
Cost satisfaction	Medium	High

Time satisfaction	Medium	High
Quality satisfaction	Medium	High

Based on the previous data presented in different tables, it is evaluated that the proposed methodology that really works for the selection process of the automated purchasing strategy works effectively in comparison with other techniques or traditional methodology. In the proposed methodology, the factors that affect the time, cost, quality and satisfaction of the stakeholders are well managed and also show that things are well considered in risk management and other issues related to management.

Conclusion

He proposed that the choice of the appropriate acquisition method be the first step to achieve the objectives of the projects related to construction. Mainly, the three most critical parameters of the project implementers are costs, time and quality.

- More effective monitoring and control for precise implementation and progress.
- People in the construction sector, whether in the public or private sector, should be well acquainted with the different purchasing systems, which will allow them to achieve good results.
- The needs, needs, destinations and objectives of the client's authentic project should be suitably suggested to the project group, taking into account that the final objective is to develop an adequate acquisition strategy.
- A common and apparent system must be installed from the beginning of the project, which will decide in detail what should be done, how it should be done, who should do it and when it should be done. You have to do it and when you have to do it. Well finished

Improving the use and equivalence of data innovation is probably the key, in general, for the development industry to have the capacity to face administrative, specialized and social difficulties. Improving the procurement strategy in building management will have more benefits to deal with the workforce, the building owner and the identified customers as such.

The results reveal that the traditional procurement and design of contracts and construction strategies are profitable, efficient and of high quality. The results indicate that the traditional procurement system is a contractual approach that largely satisfies the satisfaction of relevant stakeholders in construction. The objectives of the construction project, such as the scope of the project, its cost, duration and quality, as well as its limitations, such as time constraints, costs, site conditions, market conditions and policy restrictions. They are the main factors related to the project. Reasonabl hiring strategy

The study essentially postulates that the careful selection and adoption of a contracting method that clearly defines a particular construction project goal and that best meets the needs of a project must be adopted so that customers can obtain the best value for money from your projects Also improve the supply of sustainable housing in the construction market

References

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