

Problems of construction industry in the construction engineering

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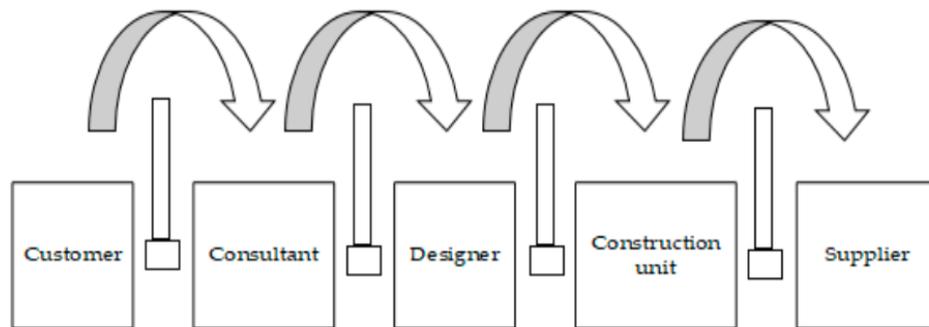
Abstract: The most common problem of applying traditional engineering in the construction industry is how to separate the design from the rest of the construction process. In essence, the common contract strategy is based on the lack of sense of identity and the promotion of adversarial culture or coordination between design and construction. This method usually leads to inefficiency, which is caused by increased project complexity, increased project cost, an inability to control the project period, during construction.

Keywords: Managed process, objectives, complex technically, fragment, adversarial, different parties.

Site Management involves a mixture of activities that turn basic resources into a finished product. Construction is seen as the conversion of raw resource inputs into defined functioning output by means of a managed process. Therefore, the construction site is viewed as a key area where money is made or lost and where there is considerable scope for improving efficiency, productivity and quality. Achieving good site management on construction sites is imperative. Failure of site management on construction sites is mainly related to the problems and failure of communication and performance between the professional team and the contractor. However, there are many reasons and factors which contribute to this problem. An increasing number of construction organizations are applying project improvement initiatives to improve their performance. The fundamental objectives are to deliver construction projects to the required quality more quickly and improve project performance. Unfortunately, practice is not that simple as construction work has become more complex technically and administratively, and there are several challenging engineering and management problems that occur on the site.

The most common problems from the fragmentation of the construction processes are a lack of sense of identity, promoting a adversarial culture, lack of communication between contractors and designers during the design stage, and a lack of feedback loops or coordination between the design and construction process, etc. The most common problem of applying traditional engineering in the construction industry is how to separate the design from the rest of the construction process. In

essence, the common contract strategy is based on the lack of sense of identity and the promotion of adversarial culture or coordination between design and construction. This method usually leads to inefficiency, which is caused by increased project complexity, increased project cost, an inability to control the project period, during construction. Figure 1 shows how traditional engineering works in the construction industry.



Many previous studies have also suggested that other experts should be involved in the first stage of project design, such as designers, mechanical engineers, electrical engineers, building technicians, and other facility management experts. Therefore, the structure of the current construction industry contains the potential for conflict when participants try to transfer risks to others the goals of the designer and builder are different during the design and construction stages: the designer wants a practical design that reflects his philosophy, while the builder wants to design a buildable product with limited risks.

The fragmented traditional approach will also create some related problems such as:

a) Lack of communication b) Adversarial Culture c) Lack of customer Focus

a) Lack of communication: Many studies and research in the construction industry have confirmed that the lack of communication between different teams and disciplines is a major problem faced by the construction industry. Communication between contractors, subcontractors, and designers is often limited at the early stage of design. Many studies have concluded that the flow of information between stakeholders and different disciplines in the construction industry is minimal. Also, researchers found that the level of communication between the main contractor and subcontractors, as well as the interaction between different disciplines within the framework of traditional engineering, is shallow, especially at the first stage of the design process. As mentioned above, the most successful design of large multi-disciplinary project requires extensive coordination among the various project teams to ensure that all the inter-disciplinary interactions such as architects, civil engineers, and quality registrars are facilitated and all the parties are kept abreast of the continuous changes in the state of the project. The problem of poor communication

leads to inefficiency, delay, and cost changes that will have an impact on project coordination and project schedule. Additionally, the design and construction processes in traditional engineering hinder the integration of design and construction, reducing the opportunity for the influence of design decisions by professionals and contractors as well.

b) **Adversarial Culture:** The construction industry is known as a complex industry, whose essence is based on temporary relationships between different parties. As explained above, the problem of fragmentation in the construction industry is not only in the relations of the project but also in the operations of the project itself, whether using traditional methods or modern methods of construction. For example, the current form of the construction industry contains many potential conflict points where participants transfer risks to others. The issue is clearly shown among all the project teams and may be caused by a simple misunderstanding or assumptions that are mainly due to the current traditional method that is based on the separation between design and construction. In general, the construction industry is fragmented, uncoordinated and full of lack of understanding between different parties, hence it is focused on non-customers, and is inefficient and expensive, and requires a capable system for the parties to meet together to discuss problems.

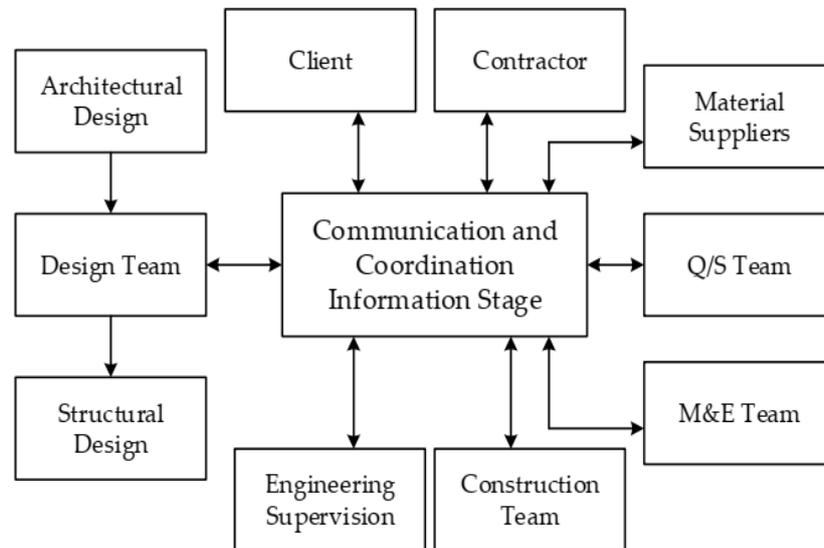
c) **Lack of customer Focus:** In the use of traditional engineering in the construction industry, the problem of rarely focusing on the client arises, that is characterized by the lack of client involvement in the first stage of design and this lack of influence on design decisions in turn leads to the possibility of producing a product which does not meet customer requirements. Ignoring a focus on the customer leads to ignoring the real market requirements, and this negatively impacts product marketing in the construction industry. A previous study criticized the performance of this industry and defined the fragmentation and separation of design and construction as the main obstacle to improve the current situation of the construction industry. To improve market conditions and work to meet the customer demands, this study finds that the construction industry needs more integration and synchronization among all the parties involved in the project. Therefore, the organizational structure of construction project based on CE is proposed. The organizational pattern has the following functions:

1. It significantly improves the information transparency of the project and enhances the efficiency and validity of information exchange among the project participants.

2. It is helpful for the project participants to know the construction situation of the project in time and improve the integrity and parallelism of the real estate project development.

3. It is more conducive to the timely update of project information, thus avoiding project delay caused by information delay and shortening the time of information transmission and processing.

4. The concurrent organization team exchanges information with each other based on the project communication and coordination information platform, thus forming a very nice working atmosphere, and successfully applying the concept of CE in the construction process of the project.



The construction process of development patterns in original construction projects follows serial steps, with very clear boundaries between stages and unidirectional information flow and sometimes unrealistic schemes considered in the design stage, which result in some difficulties in the subsequent construction process. These construction problems can only be shown in a certain stage, causing the developer complaints and rework. Construction projects based on CE are required to establish a new organizational structure system, and traditional serial engineering is no longer applicable in a parallel development pattern, so it is very important to create a new work process suitable for a parallel development pattern. In this study, a diagram of the management and control system for a construction project is shown, which integrates the concept of CE.

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