



Supply Chain Management Improvement through Value Engineering Approach in the Construction Industry

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ABSTRACT

As it mentioned in the literature the key factors in construction projects success are cost, quality and time. The construction supply chain management (which manage both suppliers and subcontractors relationship with the general contractor) is one of the most essential approaches in improvement of these factors in the construction industry. Thus, the construction companies are inevitable to improve their supply chain management. In this research, firstly, the authors represent the conceptual coordination between value engineering and construction supply chain management. Next, the results of their simultaneous implementation in the project management are specified. At last, the steps of executing value engineering in the construction corporations' organization are represented.

KEYWORDS

Supply Chain Management, Value Engineering, Construction Industry

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1- BRIEF INTRODUCTION, METHODOLOGY AND RESULTS:

Lamming (1996), Lee and Billington (1993), Sterens (1989) and Houlihan (1985) defined supply chain management as a system which consists of suppliers, producers, dealers, retailers and customers in which raw materials flow from downstream (suppliers) to upstream (customers) and information flows in both directions. As it was mentioned in PMBOK, value engineering is an innovative approach for optimization of project costs, increase in quality and profit, decrease in time and better utilization of resources. Value engineering consists of eight steps: 1. Information, 2. Analysis, 3. creativity, 4. appraisal, 5. Development, 6. Presentation, 7. Implementation, 8. audit.

So as these two approaches aim to achieve cost, quality, time and profit goals, in this research their conceptual coordination is represented and results of their simultaneous implementation in project management are specified.

In regard to successful implementation of value engineering in projects, utilizing a project with

value engineering from the preliminary phases with the participation of almost all the parties is recommended. In this regard, supply chain management improves value engineering efficiency by choosing supply parties from the beginning of the project.

Process in which value engineering affects supply chain management:

As value engineering decreases the costs for parties and increases the profit, the parties would be interested in achieving its benefits. In this regard they should pass three steps:

- 1- Flexibility: in this step suppliers will know the value engineering and will be informed about its characteristics.
- 2- Admission: in this step suppliers will understand value engineering benefits and plan to utilize it in their organization.
- 3- Stability: in the last step the value engineering penetrates in the organization culture, so employees and managers consistently use value engineering.

Table 1 – Coordination of concepts and execution results, between value engineering and supply chain management

Value engineering	Supply chain management
Through Value Engineering suppliers better distinguish customer needs and try to satisfy them	Supplier exactly prepare customer needs
Participation of Supply chain parties in Value engineering process improve cost management through innovation	Cost management is one of the main objectives of companies through supply chain management
Value engineering affect better supplier evaluation through its process	Supplier evaluation system development in performance, cost and time criteria
Through employ fewer and more qualified suppliers Value engineering would be more effective	Decrease of suppliers in supply chain
Participation of all suppliers in the Value engineering process improves the results.	Suppliers should be chosen as soon as possible in the project phases
It achieved directly through Value engineering	Network and information sharing
It achieved directly through Value engineering	Closer of relationships with suppliers
Value engineering beside improving team working, learns suppliers to utilize in their organization	Organizational learning in team working
Value engineering gather all the suppliers in its meetings within the project phases	Continuous participation of suppliers in execution and hand over
Value engineering help parties to better understand the unique goal	All the parties and project toward a unique goal
-	Partnership in resources with suppliers increase profit of all parties
Execution of innovative solutions created in value engineering process increases profit of all parties in supply chain	Partnership in profit and commitment
Value engineering improve coordination within supply chain parties	Comprehensiveness in supply chain

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