

Cost of Poor Quality in Industry

Abstract

Total Quality management is prerequisite and well known key factor in today's competitive business climate. Cost of Poor Quality (CoPQ) is crucial in any business, production or construction process. This includes all appraisal, prevention and failure costs. Anyone running a business knows these costs exist, but what they may not realize is how much of their expenses are tied directly to CoPQ particularly in projects.



Cost of quality

- Quality is conformance to the standards and fitness for purpose.
- It is a measure of costs associated with achievement or non-achievement of required outcome of a project, as agreed in contract between a contractor and its employer.

Cost of quality Continue...

- Quality and profitability are directly proportional: high level of quality results in lowering of costs (no rework, no wastage), it thereby increases profitability.
- Quality should be built in, as they say “do it right the first time”. So there is no cost of redoing work.

Cost of quality Continue...

- Investment in quality improvement tends to decrease waste and increase profit.
- The cost of quality is not manageable unless it is measurable.
- The advantages of measuring and classifying quality costs
 - Provides a control to ensure that the project mile stones are achieved within scheduled time, scope and cost.
 - Helps to identify the problem areas requiring attention to reduce the cost of poor quality.
 - Enables costing of failures in project management and helps to reveal the vital few problems.

Cost of quality Continue...

- Quality costs need to be measured not for management control, but for the development of quality thinking within the organization.

Types of Costs

- ✓ **Prevention Cost**
- ✓ **Appraisal Cost**
- ✓ **Failure Cost**

Prevention, Appraisal, and Failure Costs

Prevention Cost

- It result from activities directed towards prevention of expected variation or defects in quality of work.
- It has the lowest cost value, less time consuming, and least troublesome approach to achieve high quality out put

Prevention, Appraisal, and Failure Costs

Appraisal Cost

- include costs associated with measuring, testing and evaluating the product quality to find out, if it conforms to the required specifications?
- The second low cost value process
- The appraisal costs gradually diminish as failure costs decrease because there is less need for inspection.

Prevention, Appraisal, and Failure Costs

Failure Cost

- Failure costs are incurred to rectify the variation/defects cropped up after execution of a work or rework an unsatisfactory job
- This cost can be divided into internal and external costs.
- Failure cost can be very high; even it can be more than the cost of original project.
- We can expect a significant decrease in failure cost due to increase in prevention and appraisal costs.

Cost of quality

- Total cost of quality = Prevention cost + Appraisal cost + Failure cost
- Cost to client = Total cost of quality + Initial investment cost
- Total cost to client = Total cost of quality + Initial investment cost + Cost of poor quality

Examples from Industry

■ *Delay in decision making*

- Drilling fluid was being procured from Baluchistan (Bolan Mines).
- Transporters carrying the chemical went on strike due to demand of increase in the charges by Rs. 800 per trip.
- Decision took 3 days.
- Cost of only rig for a day was \$30,000 and total was \$90,000

Examples from Industry

■ *Non-Conformance to standards*

- Chemical was bought without any specifications.
- Bought at \$300 per ton, with 16 % purity, where as it was available at \$900 per ton with 95% purity.
- Used 6 times more to get the desired results.
- Resulted in actual cost \$1800 per ton.

Ethical Dimension

- The cost of poor quality in designing, planning, decision making, team building, selection of contractor, consultants, contract documents, poor coordination among the major stake holders & agencies, political & social pressures, and vested interests of parties etc also contribute in the project out come, due to which cost, time and scope over run are faced along with quality problems.

Findings and Analysis

- ✓ When we talk of quality, most people take it as work quality of finished product/project delivered.
- ✓ Providing work quality as per required specifications is one aspect but the quality in other factors like designing, planning, decision making, team building, selection of contractor, consultants, contract documents, poor coordination among the major stakeholders & agencies, political & social pressures also play a major role along with vested interests of parties.

Findings and Analysis

- ✓ There is another cost paid by the stakeholders of the project, if the project completion is delayed.
- ✓ Calculating the cost of quality keeping in view all the factors is a complex process. However, it can be measured for the factors directly related to a project.

Conclusions

- This study has identified few other factors which contribute to the quality of the projects.
- It aims to quantify the total quality costs in projects in a developing country.
- This study was focused on the cost to stake holders, which remain hidden.
- To calculate the optimum level of cost of total quality, the traditional model was utilized.