VASUTTI
Powering Peak Performance

INDIA
INFO@VASUTTI.IN
+91 9972014397

OPERATIONS TRANSFORMATION

A Brief Case Study on Cost Optimization

About the Brand, Objective & Problem Statement

- A large EPC company involved in fabrication of components as per design faced a typical problem. The project execution time (involving survey, site preparation, foundation, erection, commissioning & testing) invariably missed its timelines despite best of efforts. This was by a huge margin of 30 to 40% time overrun against

the planned schedules even though schedules were planned in quite a detailed manner. The cost overrun was bringing down the overall project margins in single digit. The company wanted the consulting team to take a deep dive into their project management function & practices to help them understand the reasons and fix the problem comprehensively.

Approach

Our consulting team proposed a detailed diagnostic with refinements in the context of the problem. The team gave heads up to the management team that the problem may not just be limited to the Project team, but the root cause may be elsewhere in the organization. Management was OK for the diagnostics to be carried out in other parts of the organization but still recommended the start point to be Projects.

The assessment started with a couple of past projects and one currently under execution. Each project used to be divided into multiple sub projects, each typically lasting 5 to 8 months. The three projects gave enough samples to deep dive into the problem. Our consulting team had very interesting observations to start with. Invariably all sub projects completed all activity on time as planned except for site erection activities.

The customer had a strict condition that no erection activities can start without complete batch quantities as per BOM reaching the site thus delaying the overall erection timelines in a big way. The delay was observed for all batches within each of the sub projects. This delay had an impact on cash flow as well as the no bills could be raised unless the complete batch quantity is certified by the customer at site. The diagnostics was thus extended to Operations & Delivery part of the organization.

After multiple rounds of discussions & analysis of past data, following root causes were finally presented to the management and was agreed for action:

- Design teams used centre steel members that were not readily available in the market. The design team was wholly focussed on their deliverables of optimizing the design by reducing the weight & hence cost of the item. This was achieved but without any impact analysis on downstream activities

- Deep dive into Production Planning revealed that different parts of the complete unit required common items, but due to the batch size while few components were completed rest couldn't.
- One interesting observation on wastage came as part of the analysis. The way the raw steel members were used for fabrication, a better & optimized plan of fabrication could have reduced the wastages thus reducing the impact of raw material shortage.
- In absence of an optimized fabrication plan, a huge amount of raw steel was labelled as cut-length sold as scrap.
- The set-up time & handling of raw steel on shop floor was very high due to frequent changeover thus adding not only to delays but also to cost

Solution From Vasutti

- Procurement team member was included at design review stage to confirm the availability & cost. The design team was asked to work on ore readily available material thus ensuring no delay in procurement.
- The PPC team was asked to plan the batch size based in a manner such that all components can be completed with available material.
- The "Cutting Stock" algorithm was used to create the fabrication plan to ensure that the cut length size is minimized.
- The fabrication plan further ensured minimum handling of the same material by ensuring all components from the same input item were fabricated together
- Project teams were asked to reduce the sub project size to 40% of the existing stretch in conversation with customers to expedite project execution

Results (tangible results with numbers)

➔ Project delays were brought to less than 10% from existing 30 to 40%

➔ The cash flow improved as the billing for material supply were much faster than in the past

- ➔ The largest impact was on account of effective material utilization. The wastage in terms of cut length reduced from whopping 22% to less than 9% resulting in an annualized savings of close to INR 24 Crores.
- ➔ The overall impact including the improved cash flow was to the tune of 30 Crores+
- ➔ The overall customer satisfaction rating improved significantly which helped the client in winning future bids.

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