

Proceedings of the 2nd Annual World Conference
of the Society for Industrial And Systems Engineering
Las Vegas, NV, USA
November 5-7, 2013

Decision Support System for the Ship Repair Industry

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Abstract: All ships and offshore platforms, however large or small, undergo scheduled or unscheduled repair and maintenance. The bidding process for ship repair jobs is highly competitive and global in scope. The ship repair industry is also prone to significant risks due to high level of capital investment in skilled labor, specialized equipment, and facilities such as dry docks. Several general purpose project management tools have been utilized by the ship repair and maintenance industry to obtain higher levels of efficiencies. Thus far, these tool have had limited success.

This paper describes a project management tool specifically designed for the ship repair and maintenance industry. Its design is based on data obtained from a shipyard. The data includes; 1) System capacity, such as machines, tools, worker skills, etc., 2) Current orders, e.g. date of order, due date, client details, job delay penalties, etc., 3) Order status, percent of work completed, man hours of work completed, man hours of work scheduled, etc., and 4) Other engineering details such as, services provided, operation times, bill of materials, materials required, human resources required, operation precedence, and setup times. The proposed system focuses on dealing with unpredictability of repair orders and better communication between competing business entities. The goal of this tool is to achieve higher levels of efficiencies and throughput by focusing on system optimization, as opposed to the current approach of optimizing individual business operations.

Keywords: Ship Repair and Maintenance, Database Schema, Decision Support System, Production Planning and Control, Supply Chain Management