

PERCEPTION©

Unique Features vs Typical ERP

Shipbuilders have been investing in expending their information technology systems by installing what is commonly called Enterprise Resource Planning (ERP) systems.

Enterprise resource planning (ERP) is business management software that allows an organization to use a system of integrated applications to manage the business. ERP software integrates all facets of an operation, including product planning, development, manufacturing processes, sales and marketing.

ERP software typically consists of multiple enterprise software modules that are individually purchased, based on what best meets the specific needs and technical capabilities of the organization. Each ERP module is focused on one area of business processes, such as product development or marketing. Some of the more common ERP modules include those for product planning, material purchasing, inventory control, distribution, accounting, marketing, finance and human resource management (HR).

As the ERP methodology has become more popular, software applications have emerged to help business managers implement ERP into other business activities and may also incorporate modules for business intelligence and present them as a single unified package. The basic goal is to provide one central repository for all information that is shared by all the various ERP facets in order to smooth the flow of data across the organization.

Today's ERP systems integrate a wide range of business applications. For the shipbuilder, however, there is a segment of business intelligence that is generally not addressed, but is addressed directly and successfully by SPAR's *PERCEPTION* system. *PERCEPTION* is a modular system that can be integrated/interfaced with other third party ERP modules or financial accounting systems.

The following identifies distinct advantages provided to the shipbuilder by *PERCEPTION*'s capabilities:

- It incorporates all the best practices in shipbuilding technology like concepts of pre-outfitted assemblies, hull block and grand block assembly construction, zone outfit planning, IHOP, extended advanced modular construction, and family piece part manufacturing.
- Cross referencing cost and schedule control work breakdown structures by ship systems (SWBS), by interim products (PWBS) and by production process (work centers). An

additional work breakdown structure of contract line items (CLINs) also can be used. These features enable earned value performance information (labor, material and subcontract) to be rolled up into these multiple summary reporting directions to provide management with unparalleled visibility of costs and schedule performance problems for more focused, quicker and easier resolution.

- *PERCEPTION* incorporates a cost estimating module that provides a database for storing an indefinite number of labor hour and material costs at any level of detail. These cost items can be linked directly to any ship design characteristics for use as advanced parametric cost modelling; the module automatically escalates material costs to keep an estimate consistent in terms of time. Further, the estimating module has features for transferring a completed estimate over to the production planning and material requisitioning modules that track subsequent actual costs and forecasts against the estimate.
- *PERCEPTION* generates and tracks over time cost and schedule performance as planned, as earned, as scheduled, as achieved, as forecast and forecast trends. This concept of S-Curve graphical reporting helps control total costs and schedules for the overall project as well as for each cost centre.
- Regression statistical analysis based on past data to project estimates of time/cost slippages (which facility Microsoft Project lacks as its projected slippages assume a linear relationship to present progress completion data).
- Drill down capability which facilitates more effective planning and tracing of vital information.
- *PERCEPTION* offers several types of work orders to better manage discrete work; work involving different work breakdown structures; and level of effort that otherwise is typically difficult to control.
- **SPAR also offers value added inputs like libraries of standard work packages which indicate standard activity elements of work with cost/man-hour estimating guidance details; also standard part list with guidance on man-hour/material estimate. These value added services provide a powerful incentive for small yards to implement SPAR packages.**
- Tracking manpower requirements, by project, by selection of projects, and across the shipyard's work load. Manpower requirements as estimated, as planned and budgeted, as actually incurred and as forecast to complete.
- The ability to provide the correction in labor and cost required to meet a dead line (completion schedule) is powerful information for project managers and the owners alike. It permits them to make decisions on whether to stick with the schedule or pay up for making the schedule. In short, it allows them to run the risk/reward analysis.
- The information in the cost distribution that shows the amount spent on work orders after they are closed is for the supervisor as well as the project manager to control costs. Significant labor hours charged after closings may well indicate wrong charges, rework or changes in work scope.

- In series construction of identical vessels, the analysis of overruns in closed work orders can result in method improvement in the follow-on vessel and result in cost reduction.
- *PERCEPTION* software employs terminology familiar to the shipbuilding industry, so there is no required translation of learning of system information that has been developed for use in other industries.
- *PERCEPTION* also provides functions for automating the transfer of a detailed cost estimate to become preliminary work orders and material requisitions, thus speeding up the initial planning for a new contract. As the contract unfolds, the system produces cost/schedule performance reports comparing actual and forecast costs and schedules against the original estimates.

One distinct advantage of *PERCEPTION*, compared to general ERP systems like SAP, is that *PERCEPTION* also improves the shipbuilding construction management by providing best practices in shipbuilding in its products where as other ERP providers take the existing domain knowledge of the client which need not be the best practices to design the system.



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