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# SPAR Scuttlebutt

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June 2013

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## PERCEPTION Unique Features versus Typical ERP Systems

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

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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

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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.**

*PERCEPTION* interfaces with financial and accounting systems (payroll, HR, accounts receivable, payables, and general ledger) as well as popular ship design and engineering software systems.

Clarity of real cost and schedule performance provides management more time to identify and correct production problems before they fester and sink a successful contract.

### ***PERCEPTION*, also Benefits the Ship Repair Business**

*PERCEPTION* streamlines the process of going from ship owner request for proposal (RFP) to shipyard proposal (cost

estimate) and upon contract award, immediate generation from the proposal data to budgeted material requisitions and production work orders. The purchasing, expediting and material control functions of the system all flow directly from the requisitioning information. The system collects time charges against contract work orders.

Cost and schedule status reports track costs against the proposal and original /modified budgets (contract cost management reporting).

At the end of the contract, the system will generate customer invoices according the proposal (editable) with or without change orders. Charges may be invoiced as milestones and/or actual time and materials that are linked to the given contract rate tables (labor rates, overhead, profit, and material markups).

## **SPAR's Cost Models**

### **Design, Engineering & Construction Cost Models**

SPAR's continues to develop its new construction cost models to offer more design and system selection options.

These models are available for both commercial and naval ship designs; mono-hulls, catamarans and trimarans. Each model provides a wide selection of propulsion power systems, structural materials, equipment/machinery, auxiliary, and outfit systems.

The cost models also generate estimates of cost risk based on expected levels of engineering,

shipyard, and schedule performance criteria.

A pdf [presentation](#) and the [user manual](#) for the cost model are available for download from the [SPAR website](#).

### **Naval and Coast Guard Ship Life Cycle Cost Models**

The Naval Ship Life Cycle Cost Model extends the Ship Design & Construction Cost Model described above by estimating costs for operations, repairs, maintenance and upgrades over the life of the ship. The cost models also estimate operational hours and costs lost from maintenance, repairs, and modernization. Special features expedite estimating C4 software costs for cyclic refreshing and replacement activities throughout the course of a ship's life time.

The cost models are designed to support engineering and operations trade-off studies to minimize life cycle costs and minimize lost time and cost of operations

A pdf [presentation](#) and the [user manual](#) for the cost model are available for download from the [SPAR website](#).

### **Commercial Ship Life Cycle & Required Freight Rate (RFR) Cost Models**

The Commercial Ship Life Cycle Cost Models extend the Ship Design, Engineering & Construction Cost Models (described above) by estimating costs for capital investment, operations, repairs, maintenance and upgrades over the life of the ship. Each cost model provides features for defining a commercial trade

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route between two or three different ports with transfers of container and/or trailer cargo at each port identified.

A pdf [presentation](#) and the [user manual](#) for the cost model are available for download from the [SPAR website](#).

### **Ship Repair, Maintenance & Modernization Cost Model**

To expand beyond its selections of design and construction and life cycle cost models, SPAR has introduced its new cost model for ship repair, maintenance and modernization.

This new cost model provides a wide range of typical ship repair and maintenance activities (ship yard services and production processes) from which the user may choose to generate a cost estimate. The cost model generates detail estimates for labor hours and material costs and summarizes them according to the cost model's 15 group work breakdown structure.

Models are available for both metric units of measure as well as US units.

A pdf [presentation](#) and the [user manual](#) for the cost model are available for download from the [SPAR website](#).

## **Cost Estimating Services**

SPAR provides cost estimating services for ships: new construction, ship repair, maintenance, modernization and for life cycle operations. SPAR has developed various cost models that address the requirements of all these activities. SPAR has provided

independent cost estimates for design agents, shipyards, shipping companies, and for government agencies (U.S. Navy, USCG and for MARAD).

SPAR's cost estimating includes assessments of cost risk from technical, design and engineering, build strategy and shipyard management and production performance points of view.

## **SPAR Expands Marketing Reach**

SPAR recently signed an agreement with the company Varuna Management Consults Private Ltd to market SPAR products in India, Sri Lanka, Bangladesh and Pakistan. This arrangement expands SPAR's marketing presence further into the Asian shipbuilding and ship repair market place.

Other SPAR representatives in the Asian market are located in Thailand, Republic of Korea, Singapore, Malaysia, Indonesia, Philippines and China.

## **SPAR Associates, Inc.**

SPAR has been providing shipyard production planning and management control software since 1972. In addition to its software products, SPAR offers a variety of support services, including custom software design and development; training and software maintenance services; independent cost estimating; supplemental shipyard planning and scheduling services; and management consulting to various interests in the marine industries.

We are always available to address whatever questions that you might have. Your success is ours.

## **SPAR Publications**

SPAR offers free downloads of its software user manuals, user tutorials and product/service presentation from its web site [www.sparusa.com](http://www.sparusa.com).

In addition, SPAR has the following publications available

for order to help shipyards plan and manage their operations:

- **"Estimating Coating Costs for Ships: Simple Methods for Estimating Ship Surface Areas"**  
(US(\$50.00))
- **"Planning New Construction & Major Ship Conversion"**  
(US \$75.00)
- **"Shipyard Cost Estimating"**  
(US \$125.00)
- **"Guide for Shipyard Material Control"**  
(US \$75.00)
- **"Full Implementation of a Shipbuilder's Earned Value Management System (EVMS)"**  
(US \$75.00)
- **Comparing Methods of Measuring Progress, Earned Values & Estimates at Completion (EAC)" FREE**
- **"Expanded Modularization, Ship Design & Construction"**  
(US \$75.00)

All publications are available in pdf file format via electronic mail.

Publications requiring purchase are processed on the web site via PayPal.

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