

MARINE & OFFSHORE

OPTIMIZED PRODUCTION FOR SEA
EFFICIENTLY PLAN YOUR MARINE PROJECT MANUFACTURING

System-Operation	Duration
Weld to Tank A.1	0:30
Pipe Spool-PS A.1	0:20
Insta I Pipe Spool A.1	0:20
Block04P-A1 (In1) A.1	0:30
Insta I Block A.1	0:30
Top Plate A.1	0:40
Insta I Top Plate A.1	0:30
Block04P-A1 (In1) A.1	0:30
Weld Block0P-A1 to Block0	0:50
Block04S-Assembly A.1	0:40
Weld to Block04S A.1	0:40
Finalizing System Assembly A.1	0:40
Install Foundation A.1	0:20
Install Pump A.1	0:30
Install Spool PS A.1	0:10
Install Spool SS A.1	0:10

HOW CAN YOU OPTIMIZE PRODUCTION PLANNING FOR ONTIME, ONBUDGET DELIVERY OF QUALITY SHIPS AND PLATFORMS?

As today's ships and platforms become larger and more sophisticated, shipbuilders need to improve their manufacturing efficiency to remain competitive. It starts with manufacturing planning. **Optimized Production For Sea** is an industry solution experience based on the 3DEXPERIENCE® platform that enables shipyards to efficiently develop production plans in order to optimize ship production activities and thereby reduce their total cost of manufacturing and ultimately win more orders.

With **Optimized Production For Sea**, shipbuilders can perform process planning, manufacturing assembly definition, discipline specific work preparation, 3D simulation and validation of manufacturing plans as well as generate interactive 3D work instructions.

IMPROVE DELIVERY TIMES

Being able to improve delivery times for ships and platforms is a substantial benefit for shipbuilders, but achieving this, while also maintaining costs, can be difficult. There are multiple factors that can contribute to a shipbuilder making improvements on delivery time. In a general sense, the main approaches are to improve overall efficiency (e.g., by improving collaboration, refining processes, reusing information, introducing automation) and to increase the parallelism of activities. With the **Optimized Production For Sea** experience, shipbuilders are able to improve in both of these areas. Regarding efficiency, significant improvements are achieved due to the digital continuity and tight integration between design and manufacturing activities including the semi-automatic generation of production planning from design information. Shipbuilders are also able to integrate company specific business rules into production planning to further automate the process and improve the efficiency of manufacturing planning. Regarding performing activities in parallel, the tight integration between design and manufacturing enables much more effective change management between design and manufacturing and therefore production planning can start earlier in the design process. By starting production planning sooner and more in parallel with design, the overall cycle time to design and produce a ship is shortened and therefore the shipbuilder can improve their delivery times.

DECREASE PROBLEM DURING MANUFACTURING PHASE

The majority of costs over the lifecycle of a ship project are incurred in manufacturing. In addition, the costs of resolving problems during manufacturing execution is significantly greater than detecting and resolving problems in the production planning phase. Therefore, shipbuilders are looking to detect potential problems during production planning and reduce the number of problems encountered during manufacturing execution. The **Optimized Production For Sea** experience provides the ability to simulate and validate process plans before execution starts which allows shipyard workers to do it right the first time. As they simulate and validate the process plan, they can make changes to optimize it for better quality and efficiency. They can also identify and resolve interferences and worker safety issues. In addition, during design and manufacturing activities, embedded knowledge rules will ensure that manufactured products correctly adhere to the design specification, which reduces downstream manufacturing execution errors and rework.

REDUCE LABOR HOURS AND COST

Reducing manufacturing cost is directly related to a company's business viability and sustainability. Shipbuilders that do not improve their efficiency by reducing production planning and manufacturing execution costs will not be able to stay relevant

in today's competitive shipbuilding industry. The ability to capture knowledge and embed production rules directly into the **Optimized Production For Sea** experience, shortens the production cycle and significantly reduces costs. These rules not only reduce the cost related to the time spent by the production planner, they also ensure efficient downstream manufacturing execution processes, which further reduce costs. Another area of significant costs for shipbuilding is managing change. As a ship is an extremely complex product with a large ecosystem working in parallel, the number of change requests and the time and costs of managing changes is very significant. With the **Optimized Production For Sea** solution, shipbuilders can quickly and easily determine the impact of any change request and due to the integration between design and manufacturing, they can quickly and effectively propagate design changes into the manufacturing planning activities. With these effective tools to manage change, production planning time and costs are reduced.

REDUCE SCRAP AND PROCUREMENT COST

In order for shipbuilders to be competitive, they must continue to improve their manufacturing efficiency and reduce costs. Clearly, material and procurement costs are significant to the overall cost of a ship, therefore, cost reductions in these areas can significantly improve the profitability of a shipbuilding company. With **Optimized Production For Sea**, material costs can be reduced by effective production planning activities including the usage of advanced nesting algorithms to optimize steel usage and reduce scrap. In addition, effective coordination of production planning across an entire ship can capture and bundle components for procurement planning and this along with efficient collaboration tools with suppliers can reduce procurement costs.

KEY BENEFITS

- Reduce scrap and procurement costs through associativity and automation
- Mitigate rework through early 3D simulation
- Shorten production cycle with rule-driven automation of assembly planning
- Optimize material usage and reduce scrap through interface with nesting machines
- Accelerate worker safety and efficiency with 3D work instructions
- Reduce labor costs through automation of manufacturing processes

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

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