nestix SHIP

Integrated software to control part fabrication and block assembly

CASE STUDY

STX France / Saint-Nazaire

STX France

STX Europe is an international shipbuilding group which aims to be the leading builder of cruise and offshore vessels. The group has a strong position in terms of developing state-of-the-art concepts, technology, processes and products for customers around the world. STX Europe AS comprises 15 shipyards in Finland, France, Norway, Romania, Brazil and Vietnam. STX Europe has approx. 16.000 employees. STX Europe's principal shareholder is the international STX Business Group.

Belonging to STX Europe, STX France SA has two shipyards in France, located in Saint-Nazaire and Lorient.

Saint-Nazaire shipyard

STX France Saint-Nazaire is one of the most well known shipyards in Europe (formerly known as Chantiers de l'Atlantique), and it has long tradition in shipbuilding. It has advanced production system and its main data systems are AVEVA Marine (Tribon) ship design system and AVEVA MARS ERP system. The yard has also comprehensive software capability and it has developed its own project management system and other in house software applications.

STX France Saint-Nazaire is one of the largest shipyards in Europe and its annual consumption of steel materials is more than 100.000 tons. The biggest projects include cruise ships 320–340 meters in length (hull contains up to 400.000 parts and30.000 assemblies).

NESTIX SHIP is an integrated software solution to control part fabrication and block assembly

CHALLENGES of STX France Saint-Nazaire in the beginning of the NESTIX project

STX France Saint-Nazaire wanted to improve its efficiency in hull production and to increase clearly its block production capacity with the same production system. At the same time there was a goal to take principles of LEAN production into use in the yard. In the following, several of these developments are presented.

Many data systems were in use in the hull production

The systems were still not able to control satisfactorily the complex part production process and its relation to assembly, ship design, materials, capacity and logistics.

Support of ship design to production needed improvement

Quality of the ship design required improvement to avoid unnecessary work in the work preparation in the production. Over 10 % of the parts and assemblies were changing during the production process and the changes were challenging to manage in the part fabrication and block production.

Production planning required Development

Scheduling of the block production with the software tools available was not easy due to complex ship hull structure and complicated production flow.

Material stock control

Day to day material management, planning of the future and efficient material utilization was challenging due to the limited control and high material stock levels.

Logistics inside shipyard

Tens of thousands of prefabricated parts and assemblies should find their way to right assemblies and workshops just on time without missing parts. When an assembly started it was not always clear, if all the parts and sub assemblies were ready or where they were located.

Production follow-up

Precise traceability of the production and material was settled as an important goal, as the status of the production, assemblies and parts with their locations were not known in real time by any of the data systems.

What kind of solution STX France Saint-Nazaire was looking for?

STX France Saint-Nazaire wanted to have one production oriented data system, which is able to control the whole part fabrication and block production area. The system should be integrated with the block production related data systems in the shipyard and its subcontractors. The new system should response to the challenges STX France Saint-Nazaire was facing in the production.

Project was done in a good cooperation between STX France and NESTIX

STX France representatives visited in Finland at the shipyards of STX Finland in Turku and Rauma to familiarize themselves to the NESTIX SHIP software in the real production use. The NESTIX software project in STX France Saint-Nazaire was initiated soon after the visit.

The project started with the detailed definition of the customer needs, existing production machinery and systems. At the beginning, NESTIX delivered a test system in order to make it possible for the customer to get a good picture of the software functionalities and to train the key users of the system. After this the customer's development needs for the software were identified and realized in a very good cooperation between STX France and NESTIX. Finally after the training, the system was taken into the daily production use in October 2009.

Results of the project

Nowadays the NESTIX software is controlling the functions of production from the ship design to completed blocks in STX France Saint-Nazaire. NESTIX is an important part of the shipyard's LEAN production concept.

"In NESTIX we have an excellent integrated solution in use and the data architecture is simple. All the information is now in one data system which controls fully our part and block production. The project was successful, our goals have been reached and the system has paid itself back", **according to Mr. Yann Crepeau,** IT Manager of the Manufacturing Department, STX France Saint-Nazaire.

In the shipyards of STX Europe, the NESTIX systems are in use at the moment in Finland (3 shipyards), France and Brazil.

How have users accepted the system?

The operators in the workshops and users in the office have accepted the system and are widely satisfied with the functions in it.

"It has been very nice to work with NESTIX as a software vendor and development partner", **says Mr. Yann Crepeau.**

"The best added value of NESTIX is, that we always know exactly on the spot what the status of our production is. If we have any disturbances in production: material delivery is late, problems in workshop, or need to stop/start a workshop, it is very easy to make the right decisions with the help of NESTIX software.

The work queue planning and scheduling in NESTIX is very useful. Whenever the global block sequence is changed, we have to reschedule our production. With NESTIX it takes only 3 hours for one person to reschedule all the workshops in the shipyard. Earlier it was a full time job for three people."

Yann Crepeau
IT Manager,
Manufacturing Department,
STX France Saint-Nazaire

Control block production
Shorten throughput time, more blocks
Save material
Reduce person-hours
Utilize machines efficiently
Improve quality

"We have more than 10 workshops to manage in STX Saint-Nazaire. Our goal was to share information in one integrated data solution to synchronize material stock, purchase, logistics, planning, cutting and assembly workshops. Therefore it was necessary for us to reach for the best possible decision and NESTIX , as our choice, has helped us to improve our production in all these areas and to be LEAN."

Christophe Schenfeigel
Manufacturing Vice President and Site Director,
STX France Saint-Nazaire

RESULTS of the NESTIX project in STX France Saint-Nazaire

Integrated control of whole block production

One data system, NESTIX SHIP, is covering the needs of the part fabrication and block assembly. The production is balanced and synchronized in all the workshops and work phases. The amount of data systems in the hull production has been reduced by 80 %, which is a great benefit in many ways. NESTIX is successfully integrated with AVEVA MARS ERP and project management systems which have their duties out of the part and block production.

Ship design integrated to production

Design interface according to the rules between the ship design and NESTIX has been taken into use thus making it possible for the designer to detect errors in the design information and correct them before transferring into the production. This means improved control in the ship design content reducing amount of work in the work preparation by 70 %. NESTIX includes the change management features to control the design changes in all the workshops and work phases, which in return reduces work and costly mistakes considerably.

Advanced material management

Advanced material forecasting, reservation and purchase management in NESTIX has reduced the size of material stock, but the most important factor is that the material is now really in control. Materials are managed both in individual (raw material and remnants) and article level. Detailed control of the information (orders, geometries, materials, remnants and production machinery) and integrated nesting of parts have also improved the material utilization.

Improved planning and logistics features

NESTIX estimates the production work load accurately, because real geometric information is used to estimate the process time. Planning and scheduling the machine work queues and applying LEAN pull based production to get material, parts and assemblies into workshop to start the work are now in use. The logistics inside both the shipyard and with subcontractors has improved clearly when the material, parts and assemblies guided with "home calls" in NESTIX are always available in the next work phase. Only a few parts are lost in production nowadays.

Production follow up in real time

As a result of the project the "real time" production status has been achieved by following up all the important part production and assembly work phases in one system – NESTIX. It has improved control and traceability of the whole production process considerably. The production history is now traced in every working place, every part can be traced into material individual (charge number) and location of parts and assemblies on pallets are known in the shipyard area.

Efficient production

NESTIX is controlling all the dependences in the part fabrication and block assembly, and is supporting the principles of LEAN production. The efficiency of many workshops has increased. It means better utilization ratio of machines, improved throughput and even 40 % more blocks.

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