



**BUREAU  
VERITAS**

BUREAU VERITAS MARINE & OFFSHORE

# HERRAMIENTAS DIGITALES

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MARINE Y OFFSHORE EN ESPAÑA Y PORTUGAL

Octubre 2022

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GENERAL  
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01

GENERAL INTRODUCTION

# « Digitalización » en Nuestra Vidas

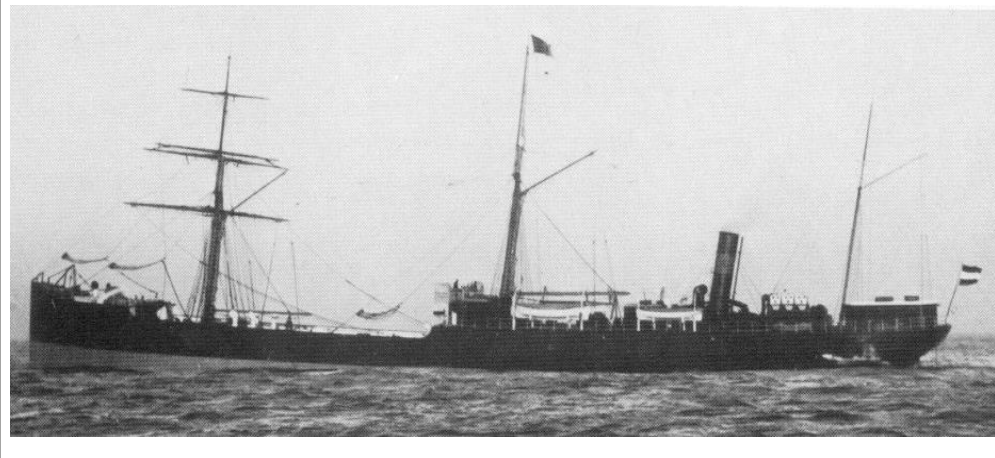
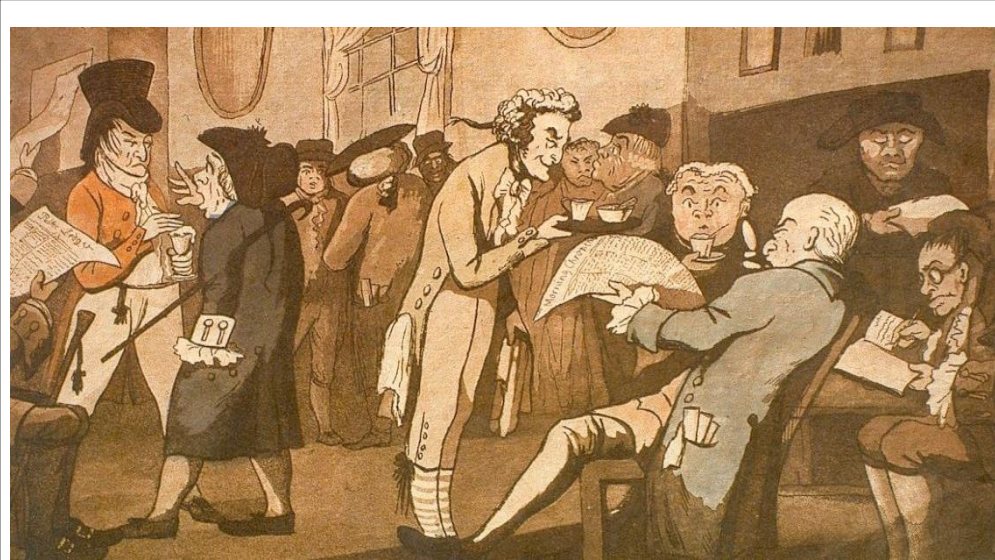




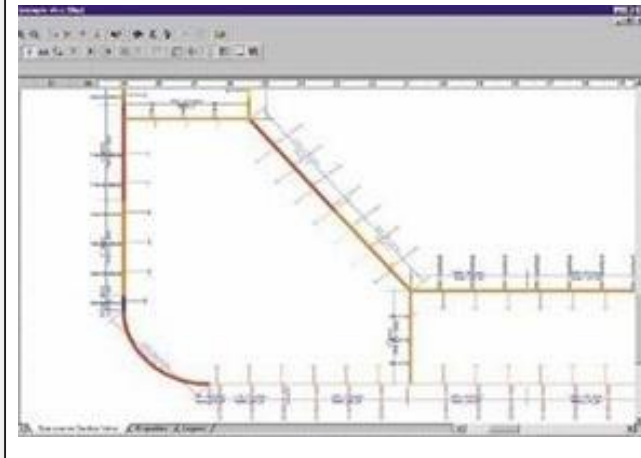
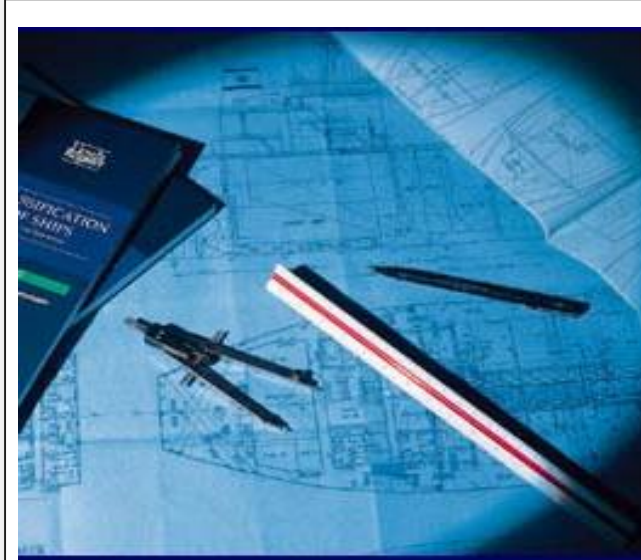
# Evolución del Modelo de Negocio de la Clasificación

## DEFINITION OF CLASS

*Desde el siglo XIX ...*

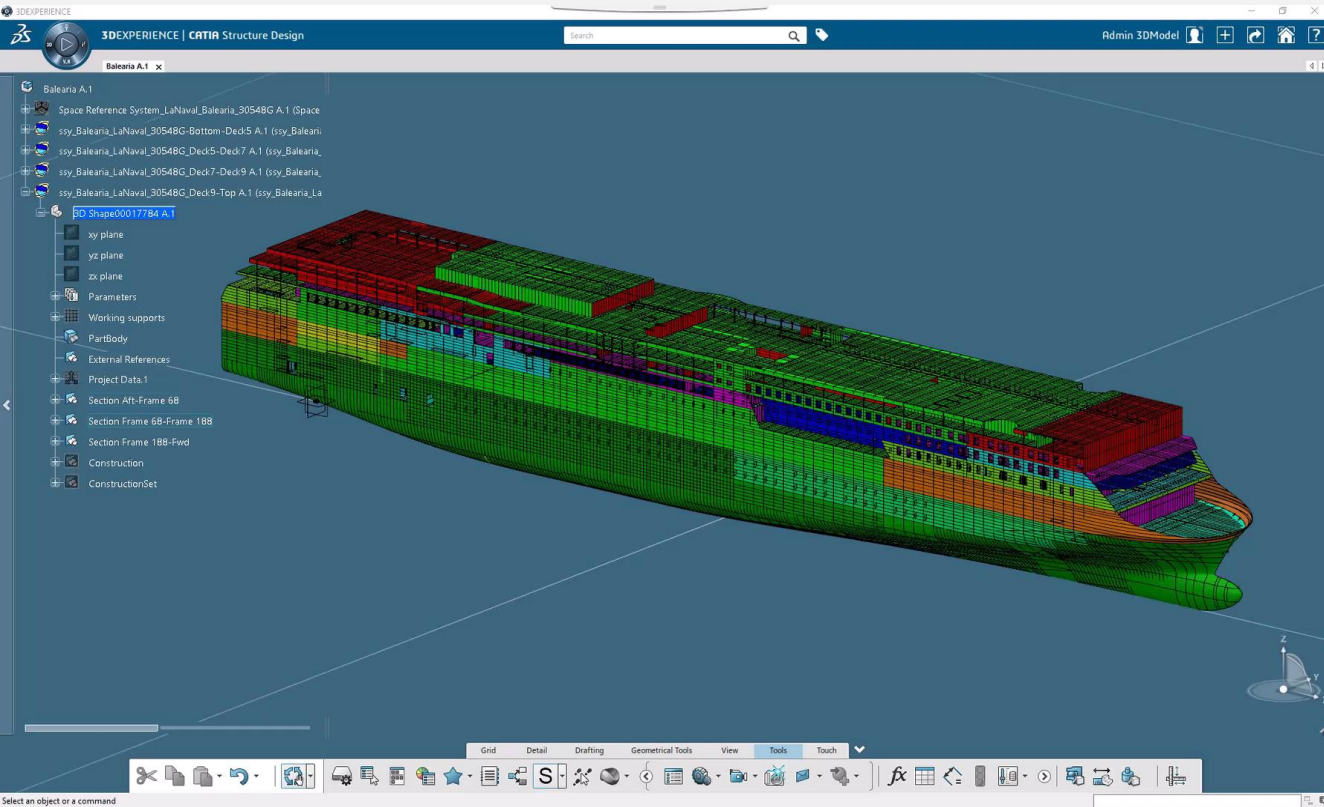


*... revisamos planos 2D*





# INTERFACE CON PROGRAMAS INTERNOS - MARS

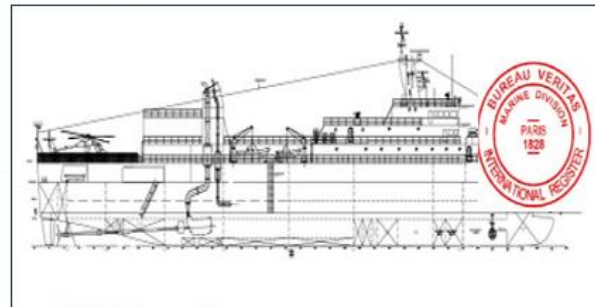




## CLASIFICACIÓN 3D

## OBJETIVO

La aprobación del diseño se basa en el gemelo 3D provisto por el Astillero





# 3D CLASSIFICATION Benefits

Use numerical model to avoid generating 2D drawings **reduce shipyard workload**

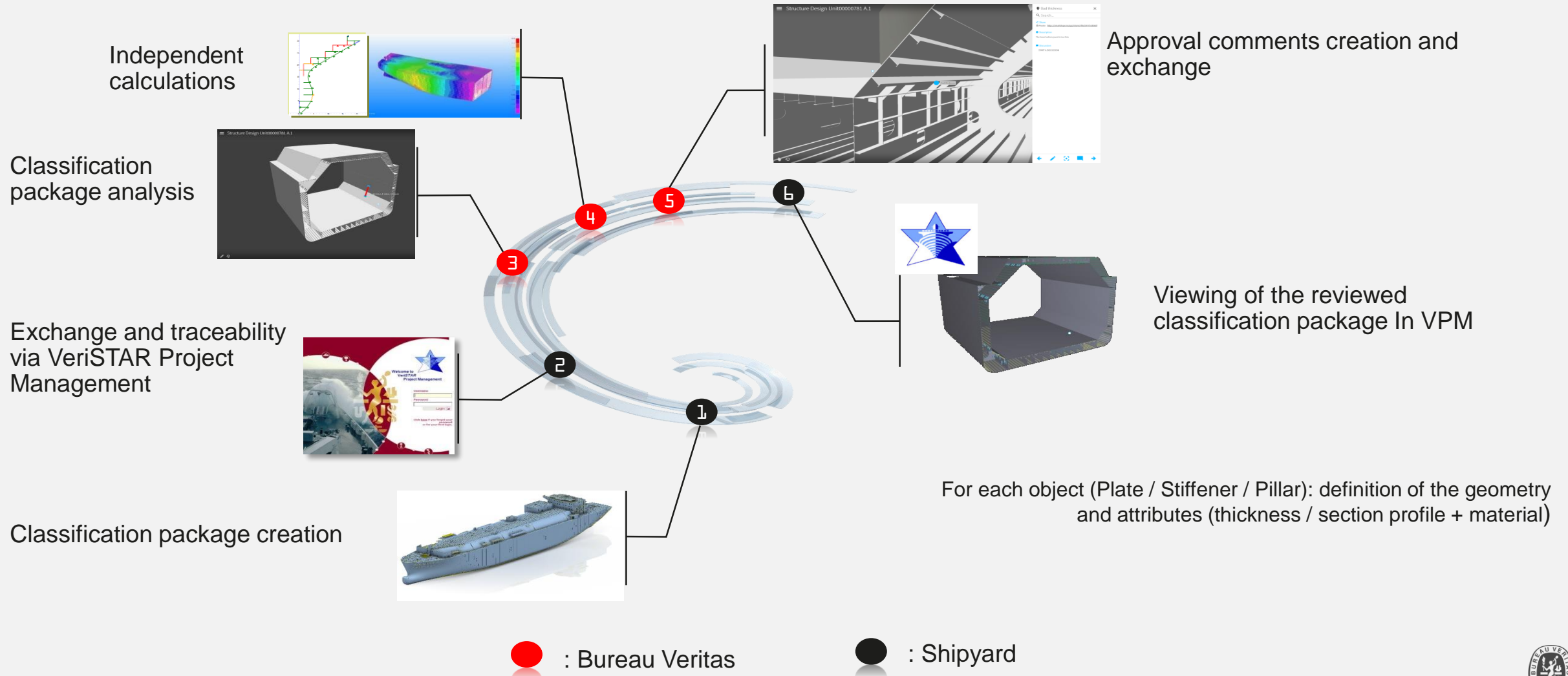
**Speed up** the process of design verification

Numerical model can be used to generate calculation databases **reduce calculation time**

No more inconsistency due to different revisions of drawings improve **quality**

**Enhance collaboration** and improve customer experience

# STRUCTURE OF THE SOLUTION





# STRUCTURE OF THE SOLUTION

## TWO MAIN PILLARS

**Web Collaborative Platform  
(exchange data / collaboration)**

### **VeriSTAR Project Management**

To manage the exchange of the 3D classification package and the comments

### **3D Web Viewer (SmartShape)**

To display\analyse the 3D Model and the associated comments



**BV independent calculations  
(BV internal use ONLY)**



### **Automatic calculation model generation**

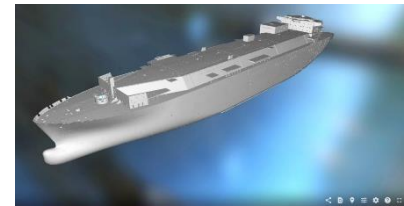
### **BV Structural Tools**

VeriSTAR Hull and MARS



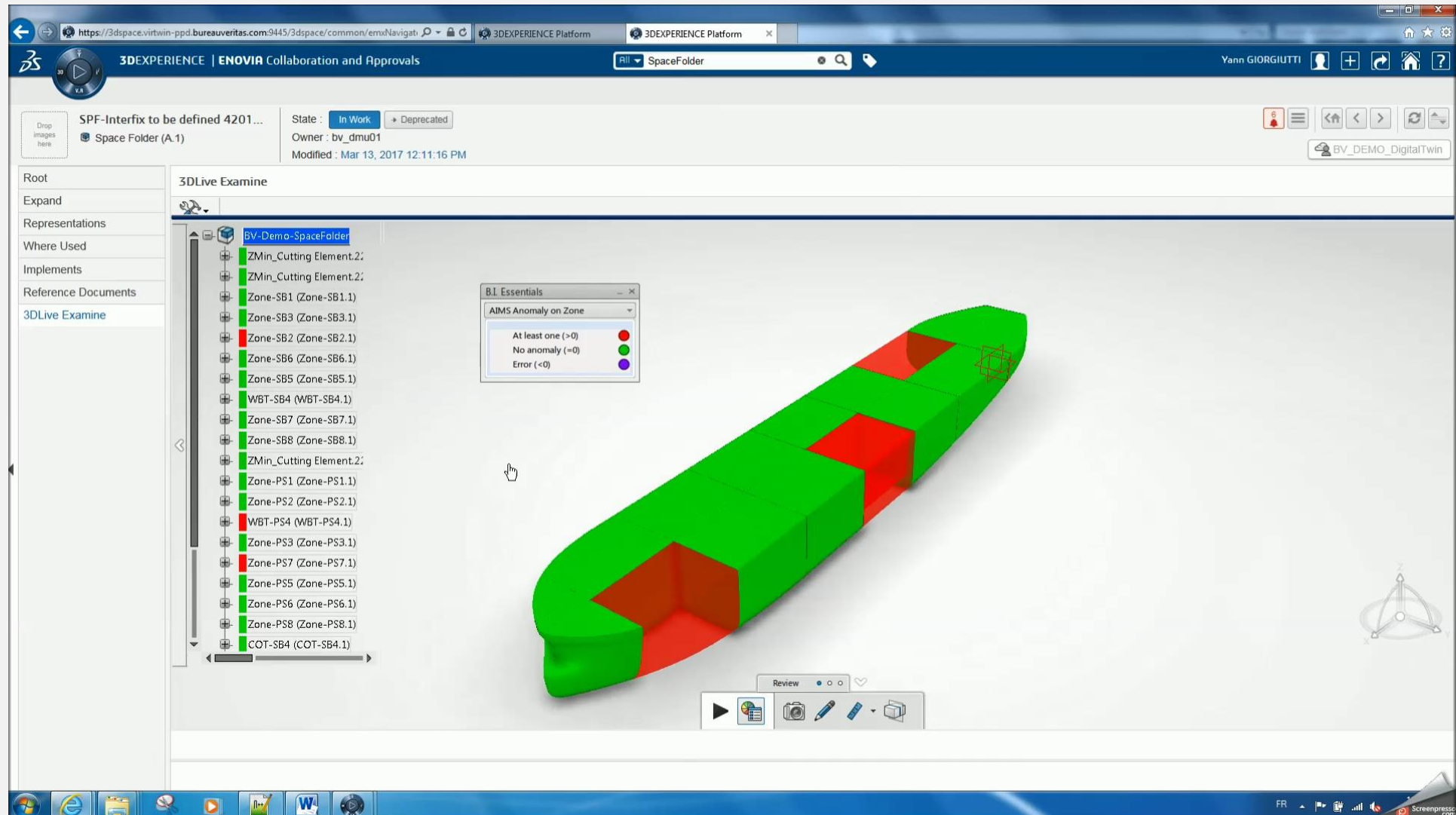
# SMARTSHAPE PLATFORM

- | Solution presented by 
- | Web platform  <https://smartshape.io/en/home/>
- | (Important: SMARTSHIP Free of charge for the actors)
- | Performance / Fluidity based on 3D Streaming
- | Collaborative platform
- | Useful tool to compare 3D models revisions
- | Compatible with different operating systems (Windows, Android, iOS)
- | Disconnected mode





# VISUALIZACIÓN 3D DE LOS INDICADORES. BUQUES EN OPERACIÓN



# VISUALIZACIÓN 3D EN DETALLE



The screenshot displays the 3DEXPERIENCE web application interface. At the top, the browser address bar shows the URL <https://3dspace.virtwin-ppd.bureauveritas.com/9445/3dspace/common/emv/Navigat...>. The page header includes the 3DEXPERIENCE logo, the text "ENOVIA Collaboration and Approvals", and a search bar. The main content area is titled "3DLive Examine" and shows a detailed 3D model of a ship hull structure. The model is rendered in a cutaway view, revealing internal components such as the inner hull, decks, and various bulkheads. The components are color-coded: the outer shell is brown, the decks are green, and the internal structure is blue. A left-hand navigation pane lists the following items:

- Root
- Expand
- Representations
- Where Used
- Implements
- Reference Documents
- 3DLive Examine

The 3D model is displayed in a 3D view with a coordinate system and a camera icon. Below the model, there is a "Review" toolbar with icons for play, camera, and other review functions. The interface also shows a "State: In Work" and "Owner: bv\_dmu01" for the current document.



02

DEMO

# TIME FOR DEMO- WORKFLOW

VeriSTAR PM Simulation

[My desktop](#)
[Search project](#)
[Info](#)
[Profile](#)
[Disconnect](#)
[Select tool](#)

Project 
Search documents | Cert. n°

▶ Drawings > Drawing revision detail

Project: [SIM1900321](#) / 3D - TESTS OLIVIER & HUGUES - 23/05/2019    Main shipbuilder: [Shipyards Consulting](#)    [Add to favorites](#)

**OWNER & SHIPBUILDER ACCESS GRANTED**

Drawing Number: **Demo 3D Model**    Revision no: **0**    Drawing Name: **Demo 3D Model**    Approval stamp:    Status: **In Progress**    Shipbuilder: [Shipyards Consulting](#)

[New revision](#) | [New drawing](#) | [Create correspondence](#) | [Customer access](#)

Drawing revision detail

[Drawing historic](#) | [Edit](#) | [Review to be validated](#) | [Add comment](#) | [Add comments from library](#)

<p>Project ID: <b>SIM1900321</b></p> <p>Subfile: <b>H - Hull reviewed by DA (BV PARIS)</b> <span style="font-size: 0.8em;">No other subfile</span></p> <p>Drawing Number: <b>Demo 3D Model</b></p> <p>Title: Demo 3D Model</p> <p>Revision Number: <b>0 last</b> - No other revision</p> <p>Revision Date:</p> <p>Categories:</p> <p>Zones:</p> <p>Document Type: 3 - Drawing</p> <p>Approval Stamp:</p> <p>Approval Date:</p> <p>Input made by:</p> <p>3D e-Drawing:  <span style="margin-left: 20px;">Scale</span> <span style="margin-left: 20px;">Format</span></p> <p>Shipbuilder/Consultant: <a href="#">Shipyards Consulting</a></p> <p>Shipbuilder Subfile: <b>4000 - BUREAU TECHNIQUE PEINTURE</b></p> <p>Created for operation:</p>	<p>Order No.: <b>35</b> <a href="#">clear</a> <a href="#">Modify</a></p> <p>Box No.: <b>1</b></p> <p>Other centres: <span style="font-size: 0.8em;">?</span></p> <p>Incoming mail:</p> <p>Date:</p> <p>Outgoing mail:</p> <p>Date:</p> <p>Sent to HO: No</p> <p>Action: for review</p> <p>Surveyor in charge: J. Serres</p> <p>Registration info: Posted by E. Guerin (Shipyards Consulting) on 10 Sep 2019 Registered by BV PARIS on 10 Sep 2019 Last status update: 10 Sep 2019</p> <p>Deadline:</p> <p>Start of review: End:</p> <p>Other Reference:</p> <p>Remark:</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Comments

[All subfiles](#)     [Display all details](#)

ID	Subfile	Other Ref	Last Event	Title	Type	Status	Created on	Valid on	
<a href="#">Time tracking</a>									







03

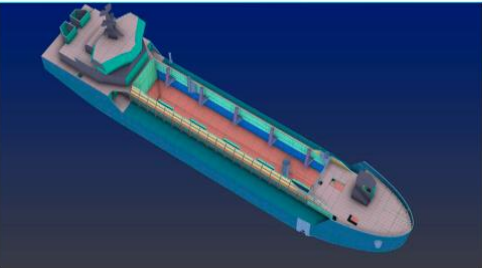
CONCLUSION



# BV ALREADY DELIVERED THE FIRST 3D CLASS FOR NAVAL GROUP AND DAMEN



2,721 (1095x596)  
 show/hide preview  
 close - toggle corner  
 or keys - fine move



NEWSROOM / PRESS RELEASE

## DAMEN, NAPA AND BUREAU VERITAS SUCCESSFULLY DEPLOY 3D CLASSIFICATION APPROVALS FOR FIRST SHIP DESIGN

Jan. 12 2023

in t f |

Damen Engineering will implement 3D Classification for further designs after first end-to-end trial with a dredger vessel demonstrates efficiency gains and time savings.

**Helsinki (Finland), 12 January 2022** – Damen Engineering has announced the completion of their first vessel design to be entirely created, reviewed and class-approved using 3D models in collaboration with leading classification society Bureau Veritas (BV) and global maritime software provider NAPA.

The 2500 m<sup>3</sup> dredger concept is the first Damen vessel concept to receive Bureau Veritas certification using 3D model-based classification approval (3D MBA) – a process in which class societies review and approve designs using 3D models rather than 2D drawings, the current norm. Following this successful implementation of 3D MBA, Damen has confirmed that the process is already being applied to further designs including a 1000 m<sup>3</sup> and a 4000 m<sup>3</sup> hopper dredger.

These 3D model-based designs and approvals are supported by NAPA's cutting edge technology which enables Damen and Bureau Veritas to work collaboratively on the same 3D model throughout the design and review process. From the very first project, the deployment of 3D MBA has yielded positive results, streamlining communication and saving time. Critically, 3D MBA also eliminates a major potential source of errors, as Damen no longer needs to translate the 3D models it uses to design vessels into 2D drawings for class approvals, and then back again into 3D to implement the changes.

This first approval follows a [partnership between NAPA and Bureau Veritas](#) to implement 3D model based

Several pilot projects in progress with different shipyards / designers around the world.



## FORMAT MANAGEMENT

## KEY OF THE SUCCESS



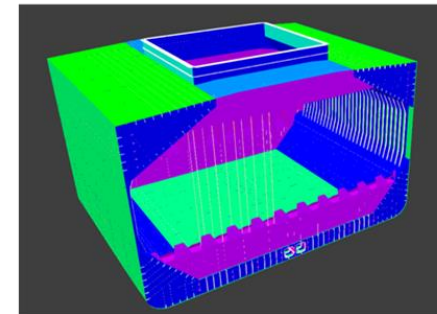
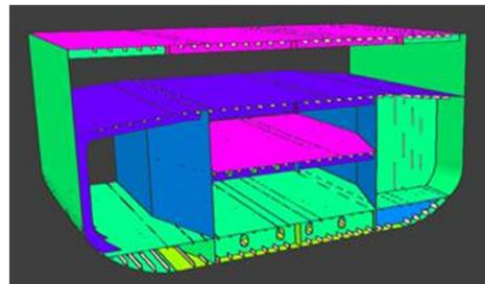
### 3dxml format -> native format of 3DExperience (Dassault Systèmes)

- | First 3D Classification for *NAVAL GROUP* Frigate Several pilot projects finished successfully.

### OCX (Open Class eXchange) format

- | 2022 Q2: First 3D Classification based on OCX format generated by NAPA DESIGNER

Tests in progress with major CAD providers



# RESUMEN

**Necesidad  
de Modelo  
3D (o  
planos 2D  
al  
principio)**

**Plataforma  
colaborativa**

**Modelo  
único**

**Ahorro de  
tiempos**





**BUREAU  
VERITAS**

**Shaping a world of trust**

