



**BUREAU
VERITAS**

OLIVIER DEGRAND

3D CLASSIFICATION PROJECT

OCTOBER - 2024

AGENDA

01

GENERAL INTRODUCTION

SCOPE & OBJECTIVES OF THE
3D CLASSIFICATION PROCESS

02

DEMO

ALL STEPS OF THE 3D
CLASSIFICATION WORKFLOW





01

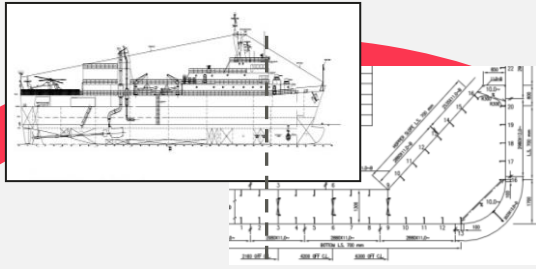
GENERAL INTRODUCTION



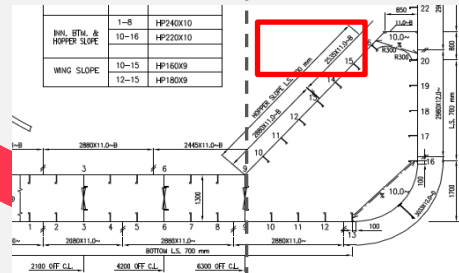
CURRENT SITUATION OF CLASSIFICATION PROCESS



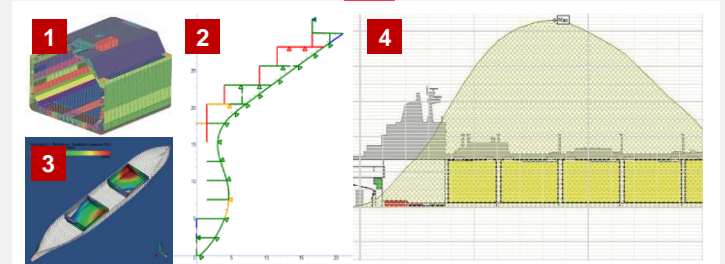
SHIPYARD / DESIGNER



VERISTAR PROJECT MANAGEMENT



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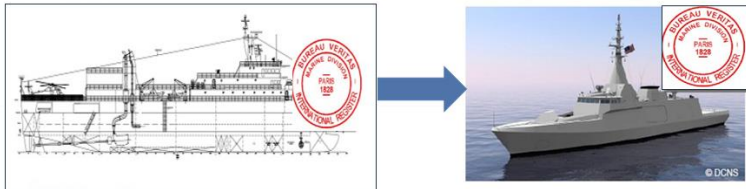


1. VeriSTAR Hull 2. MARS 3. HydroSTAR 4. VeriSTAR Stability

3D CLASSIFICATION

OBJECTIVE

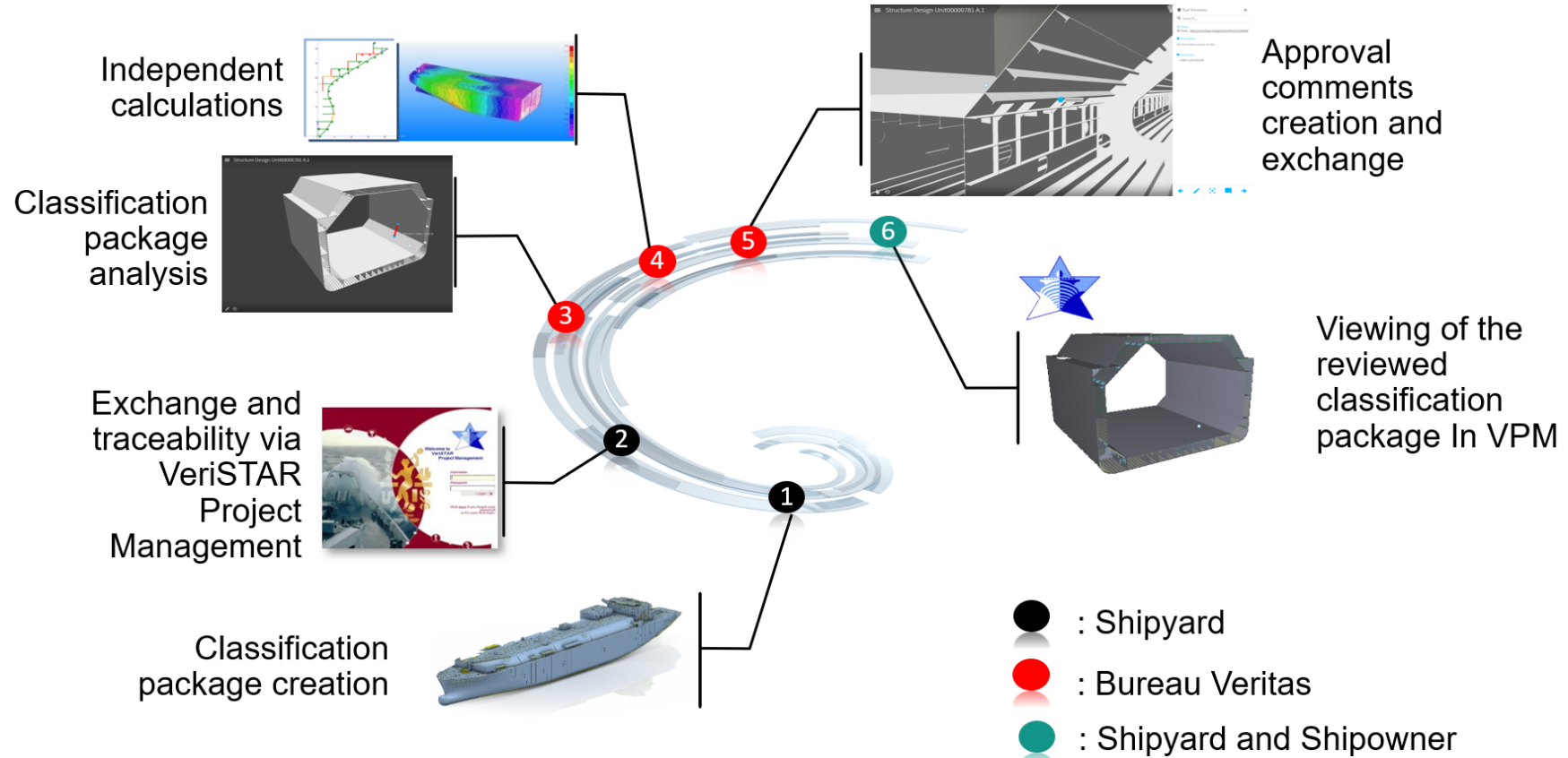
- | Design approval based on the 3D digital mock-up provided by the designer:



BENEFITS

- | **Reduce shipyard workload** using numerical model to avoid generating 2D drawings / Fully digital work process
- | Numerical model can be used directly to generate calculation databases and improve **quality**
- | No more inconsistency due to different revisions of drawings improve **quality**
- | **Enhance collaboration** and improve customer experience
- | **Speed up** the process of design verification

STRUCTURE OF THE SOLUTION



For each object (Plate / Stiffener / Pillar): definition of the geometry and attributes (thickness / section profile + material)

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

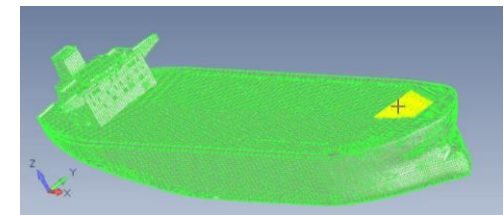
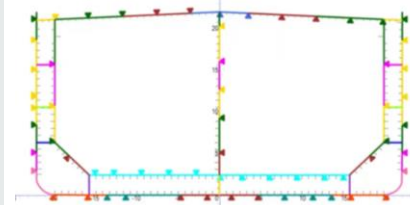
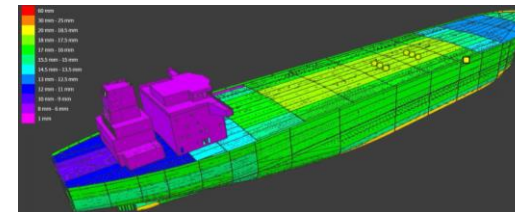


BV INDEPENDENT CALCULATIONS

(ONLY FOR BV INTERNAL USE)

AUTOMATIC CALCULATION
MODEL GENERATION

BV STRUCTURAL TOOLS



EXCHANGE & TRACEABILITY VIA VERISTAR PROJECT MANAGEMENT (VPM)

Web-based collaborative platform for project management where all actors (including shipbuilders and owners) can review, edit and exchange information on a real-time basis.



- | **Based on existing process in VPM to benefit:**
 - | The access and property rights management
 - | The design review workflow and the comment management

My Favorite Projects		Last Events		Comments		Reports Received		Drawings	
Expected	Posted	Registered	In Progress	Reviewed	Rejected				
Posted drawings - (no filter)									
	Project	Applicant desc.	Drawing Nbr.	Rev.	Rev. Date	Title	e-Drawing	Posted on	
	SIM1601311		123	A		General Arrangement		20 May 2016	
	SIM1601311		456	B		Midship Section		20 May 2016	

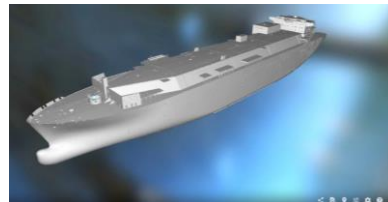
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SMARTSHAPE



SMARTSHAPE Platform:

- | Web platform
- | 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



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02

DEMO



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DEMO - WORKFLOW



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3D CLASSIFICATION WORKFLOW

CLASSIFICATION PACKAGE
ANALYSIS



03

CONCLUSION



OPEN CLASS EXCHANGE FORMAT

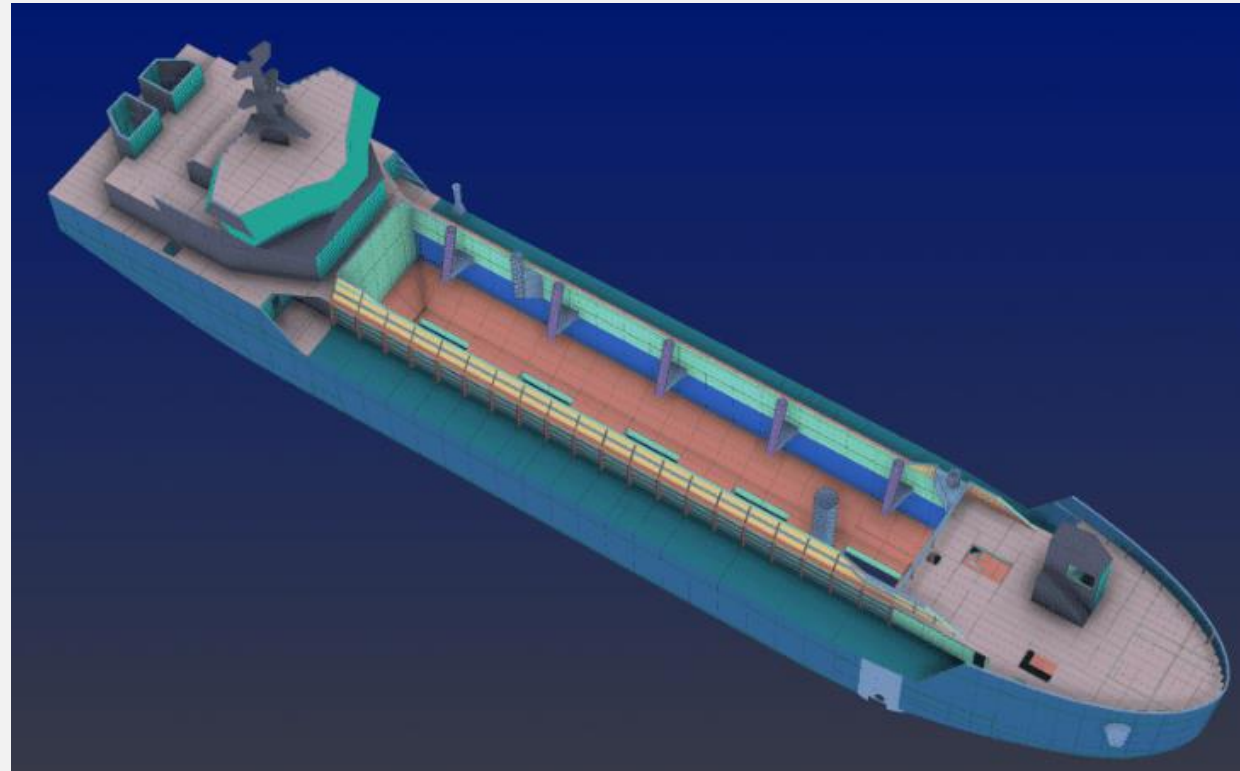


- OCX open-standard exchange format to ensure interoperability across all the different CAD software applications -> the key of success
- BV delivered the first 3D Classification based on OCX format.

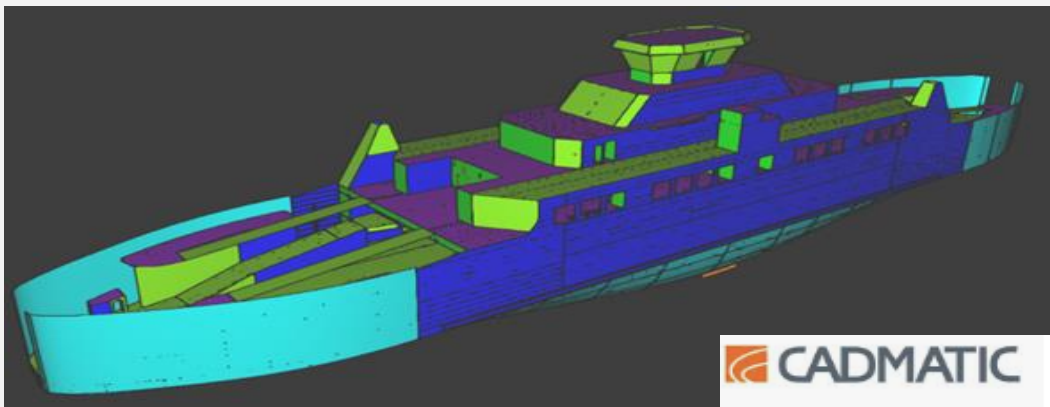
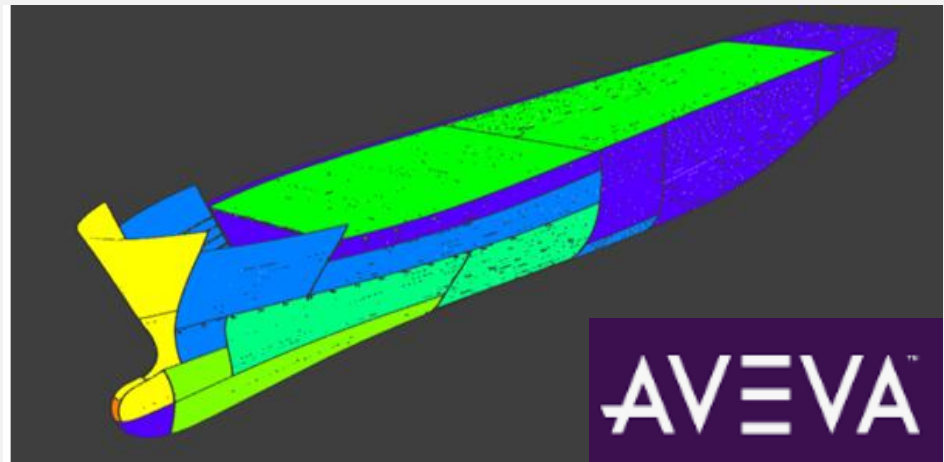
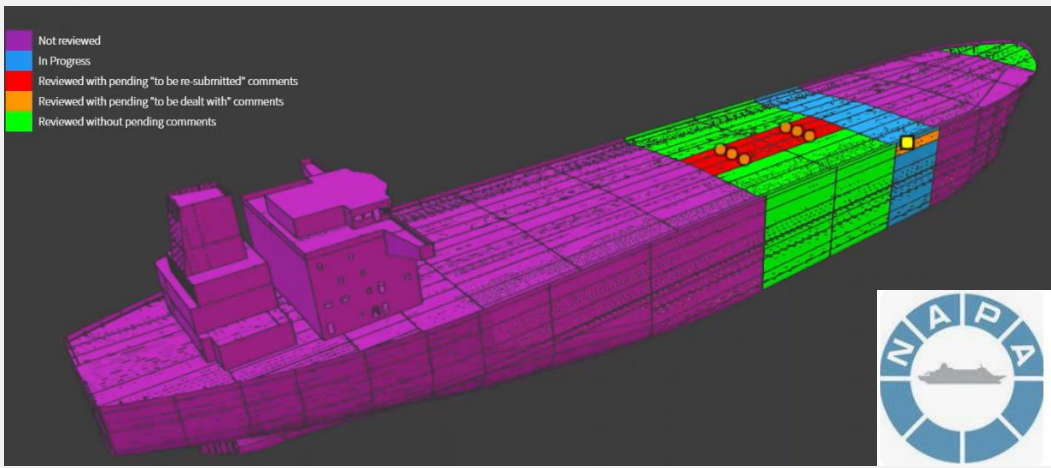
PRESS RELEASE

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

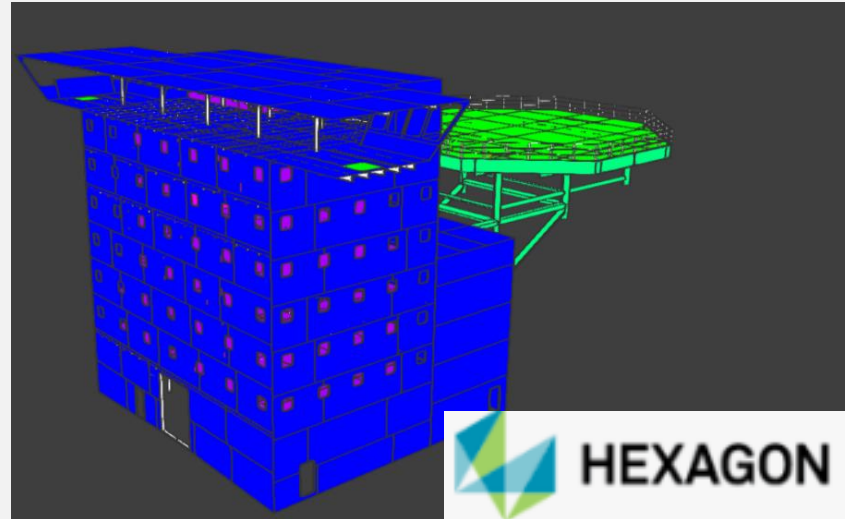
The 2500 m³ dredger concept is the first Damen vessel concept to receive Bureau Veritas certification using 3D model-based classification approval (3D MBA) – a process in which class societies review and approve designs using 3D models rather than 2D drawings, the current norm. Following this successful implementation of 3D MBA, Damen has confirmed that the process is already being applied to further designs including a 1000 m³ and a 4000 m³ hopper dredger.



TESTS IN PROGRESS WITH MAJOR CAD PROVIDERS



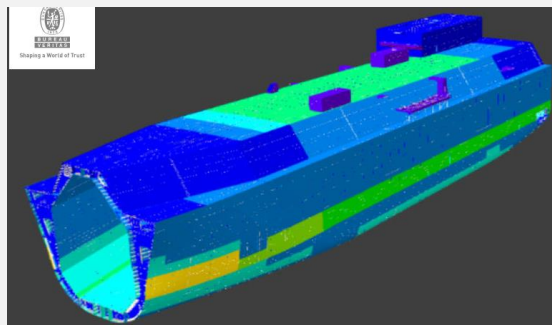
SIEMENS



PILOT PROJECTS

PRESS RELEASE

HANWHA OCEAN AND BV COMPLETE JOINT PROJECT ON 3D MODEL BASED CLASSIFICATION APPROVAL

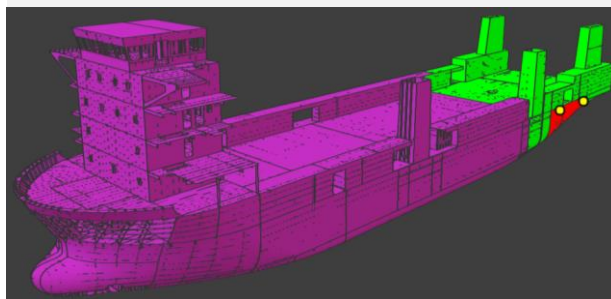


PRESS RELEASE

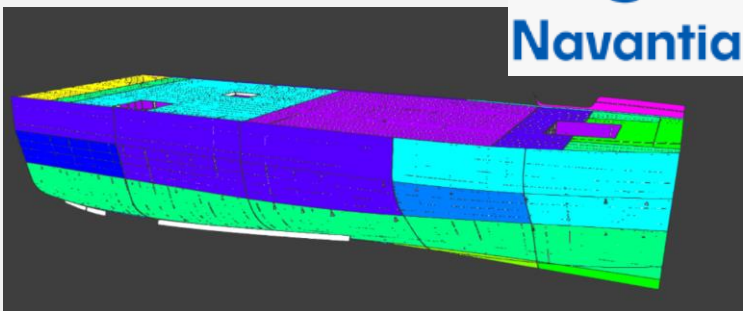
MITSUBISHI SHIPBUILDING AND BUREAU VERITAS COLLABORATE ON ADVANCED 3D MODEL-BASED CLASSIFICATION PROJECT

PRESS RELEASE

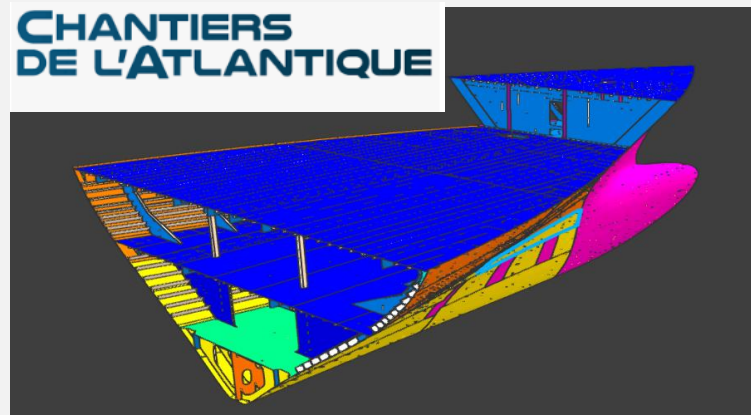
SDARI, BV AND NAPA JOINT PROJECT VALIDATES BENEFITS OF 3D MODEL-BASED CLASSIFICATION APPROVALS



Nov. 20 2023



CHANTIERS DE L'ATLANTIQUE



THANK YOU FOR YOUR ATTENTION

QUESTIONS & ANSWERS



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