



OPIN Workshop

Advanced Materials and Manufacturing (Composite focus)

12/11/19, Nantes

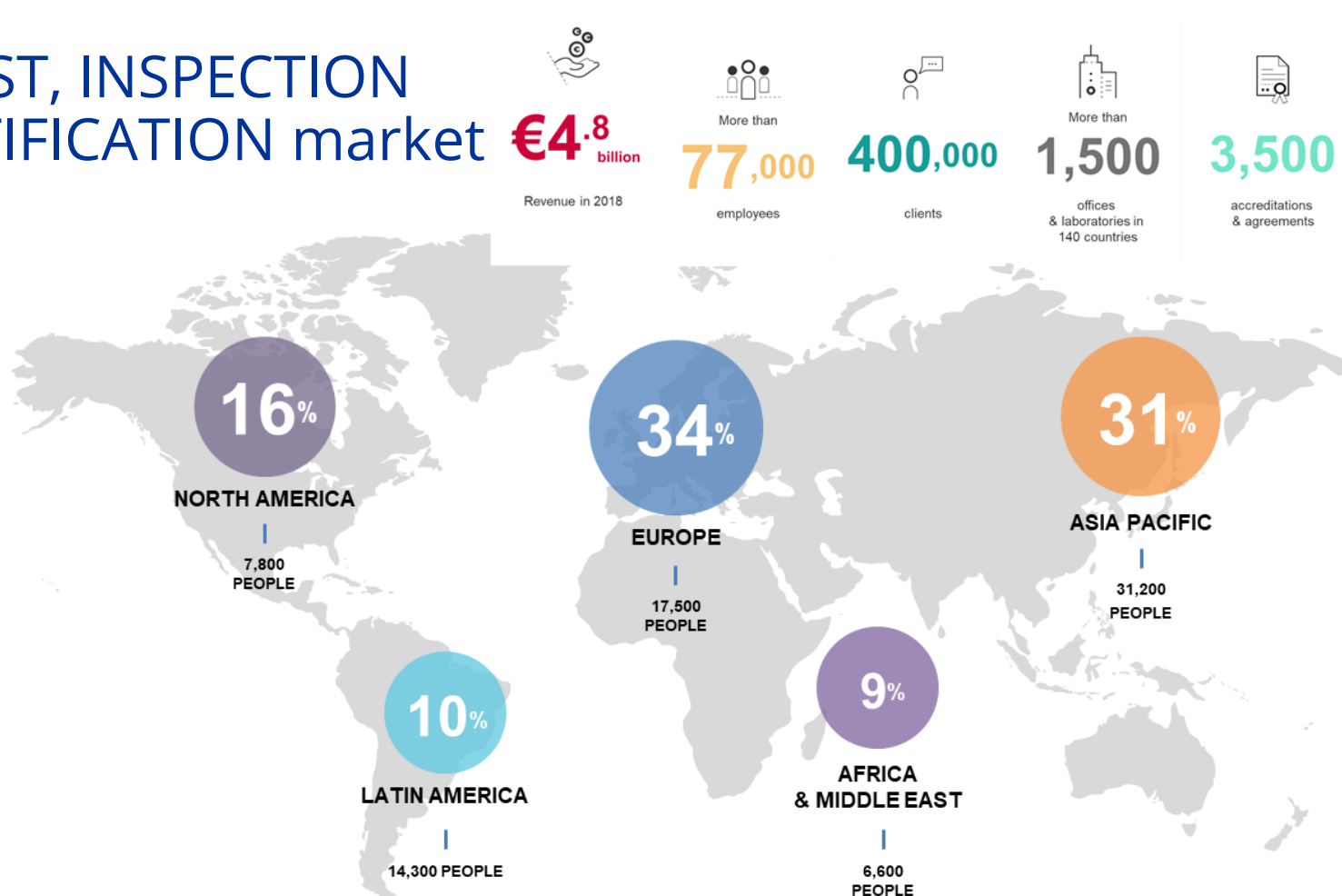
Stéphane PABOEUF

*Head of Composite Materials Section
Bureau Veritas Marine&Offshore*







Applications and needs
from the industrial sector

Bureau Veritas presentation

A leader
 of the TEST, INSPECTION
 and CERTIFICATION market



Bureau Veritas presentation

					
No.2	No.1	No.1	No.1	No.3	No.3
MARINE & OFFSHORE	INDUSTRY	BUILDINGS & INFRASTRUCTURE	CERTIFICATION	AGRI-FOOD & COMMODITIES	CONSUMER PRODUCTS
7%*	22%*	27%*	8%*	22%*	14%*
Ensure safety at sea through ship and offshore platform classification services. Provide technical expertise to assess and manage risks and improve performance	Ensure the safety, security, reliability and integrity of industrial assets throughout their life cycle, and assess their compliance with national, international and voluntary QHSE standards. Control quality and provide supply chain optimization assistance in the automotive industry	Provide assurance that property assets and infrastructure in service or under construction are safe, energy efficient and comply with applicable regulations. Ensure business continuity and environmental protection by assessing the safety and efficiency of in-service installations and by analyzing air and water quality	Certify that quality, health, safety and environmental management systems comply with applicable international, national or industry standards, or standards specific to large companies, in order to improve risk management and performance	Improve transparency, inspect the composition, quality and quantity of commodities throughout the value chain, from extraction to sale, and farm to fork. Facilitate international trade and protect citizens from poor quality products by verifying import conformity	Test and verify consumer product conformity, quality, safety and performance, and improve supply chain efficiency

Bureau Veritas presentation

BV'S ROLE

Verifying the conformity of ships (under construction and in service) to classification rules and standard that mainly concern structural soundness & reliability of machinery on-board

Service type

Design review
 Periodical inspections
 Subsea certification

FOR

Asset type

Passenger ships
 Trade-related ships
 Floating & Fixed units
 Marine Renewable units

Competitive advantage

Global network in 90 countries – 18 local design offices + 180 control stations

Strong expertise in niche market built through M&A

Digitalization – Dassault partnership, connected surveyors, sensors, ...

CLIENTS

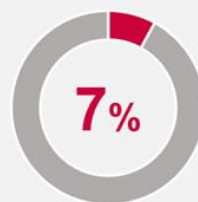
Shipyard / shipbuilders / ship owners

Equipment /component manufacturers

Oil companies / EPC

Insurance companies, P&I clubs, lawyers

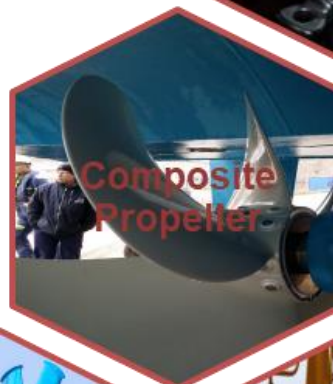
GROUP REVENUE



Certification
 or
 classification
 ?



On going research projects





Project results



RealTide: Advanced monitoring, simulation and control of tidal devices in unsteady, highly turbulent realistic tide environments

2018-2020

5 M€

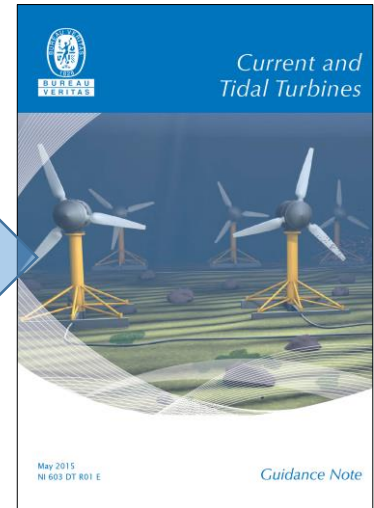
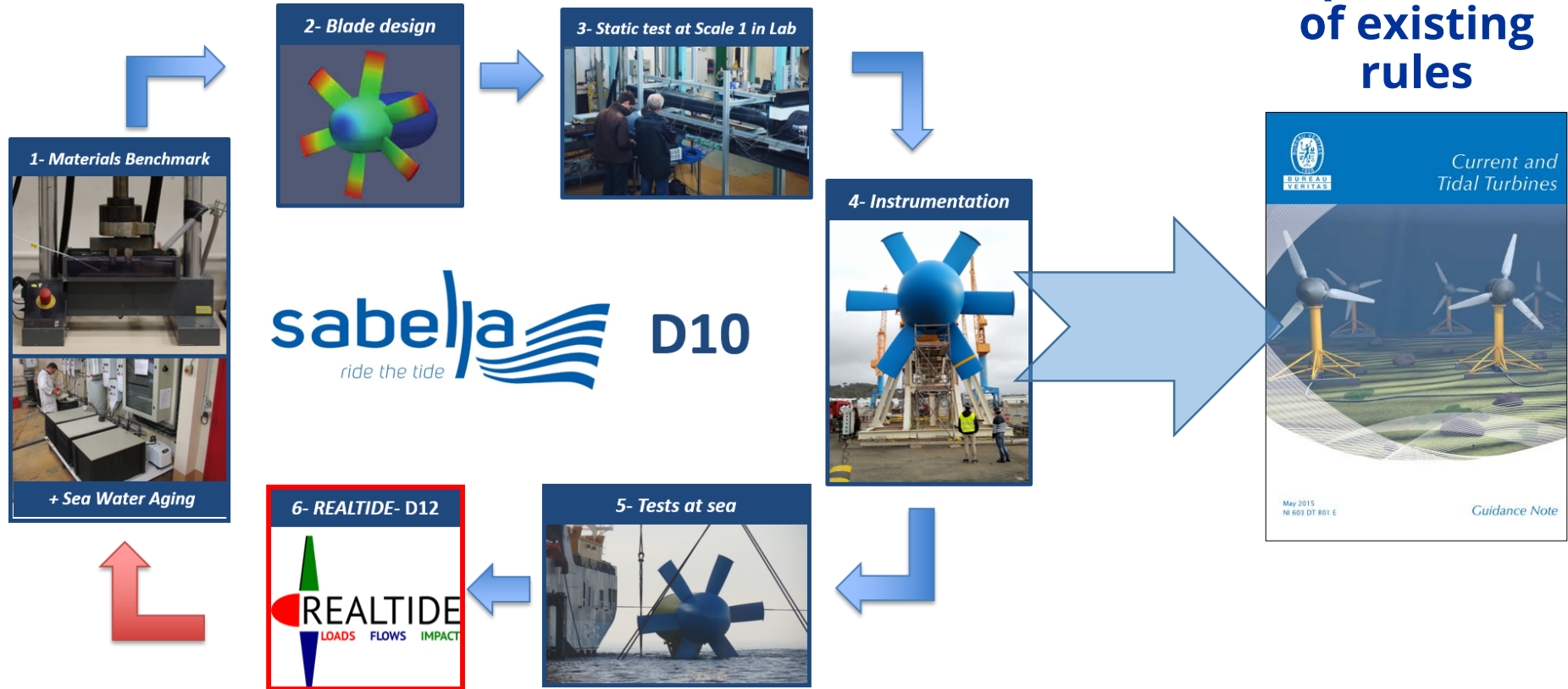


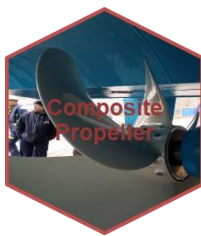
Horizon 2020 research and innovation programme under Grant Agreement n°727689



Project results

Improvement of existing rules





Project results

Funder: French Department of Defense

Coordinator: LoireTech

Partners: Meca, Naval Group Research

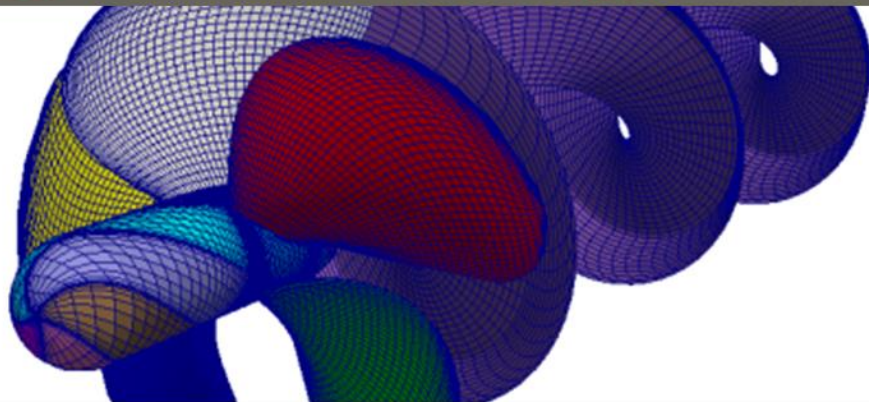
Subcontractors: AML, Bureau Veritas



Duration: 2 years



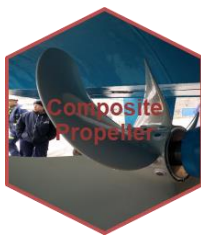
Budget: 1.2 M€



→ **Objectives of FabHeli project are to:**

- Reduce the energy consumption,
- Reduce the manufacturing costs,
- Reduce the maintenance costs,
- Improve the hydrodynamic efficiency.

→ **BV objective is to prepare a referential for the design assessment of composites propellers**



Project results

- Development of **new rules**
 - Based on BV experiences in Composites Materials and results of research projects
- NI663 Content
 - Section 1: General
 - Section 2: Certification Scheme
 - Section 3: Composite Material Certification
 - Section 4: Design Assessment of Propeller
 - Section 5: Testing Procedures
 - Section 6: Inspection at Works and Surveys
 - Appendix 1: Individual Layers for Laminates
 - Appendix 2: Laminates Characteristics and Analysis





Projects results



01.06.2017
31.05.2021



Budget: €13.5 M
Funding: €10.8 M



36 partners
12 countries



www.ramsses-project.eu



RoRo-Deck



Hull



Superstructure



Cabin



Deck houses

Ship &
Process
Integration

Target TRL:
5...7



Rudder



Propeller



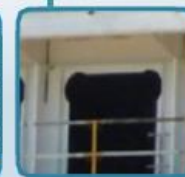
Walls



Superstructure



Steel decks



Bulkhead



Repair

Equipment

Components

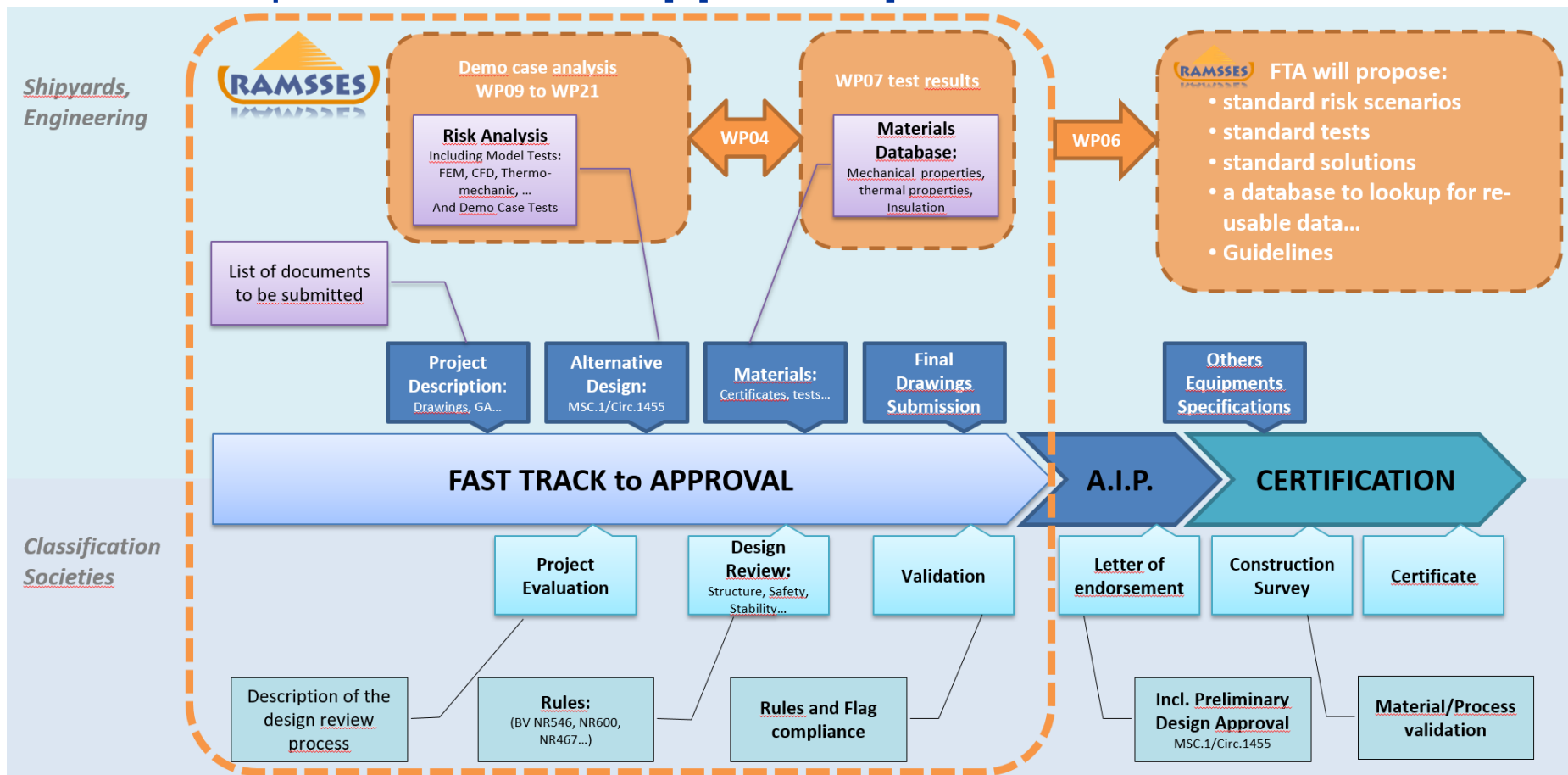
Advanced Steel



Projects results



• Improvement of approval process





Project results



- Support of **International Regulations**



- MSC1574
Lunch presentation, SDC7, London, February 2020

Conclusion

- **Collaboration** with academics and industrials
- **Support** for development of **innovative solutions**
- **Framework** for standardisation/certification/classification
 - Derisking
 - Acceleration of development
 - Cost reduction



Q & A

Interreg



North-West Europe

OPIN

European Regional Development Fund

Thank you!