Navantia coex Advanced Manufacturing

Additive Manufacturing in Shipbuilding

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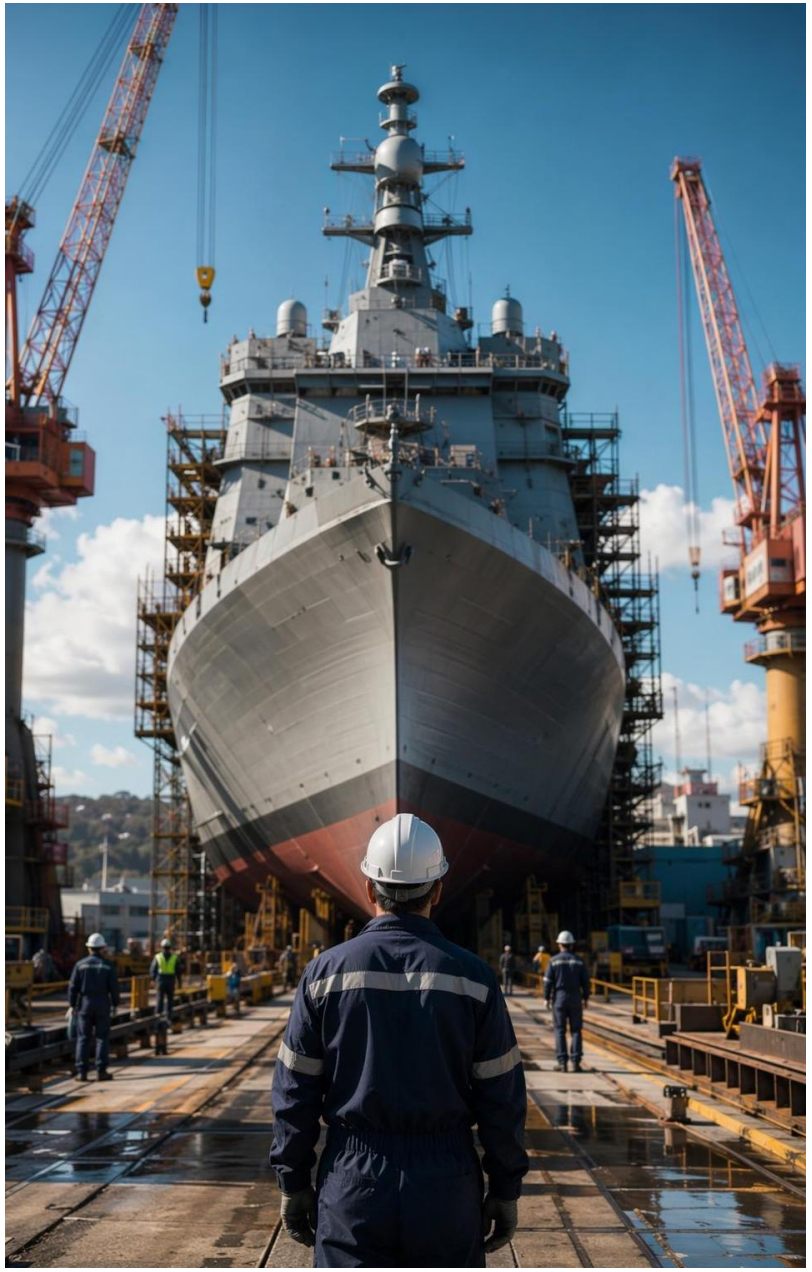

Shipbuilding context today

OPERATIONAL PRESSURE
Shipyards face high workload.

TRADITIONAL MANUFACTURING
Welding, machining, cutting, and assembling large metal blocks.

SUPPLY CHAIN DEPENDENCE
Supplier reliance drives delays, cost, and risk.

AGILE
Production must adapt quickly to change.

FLEXIBLE
Winning approaches enable customization and rapid iteration.

RESILIENT
Reduces exposure to supplier delays and cost pressure.

Additive manufacturing as a critical enabling technology

Strategic Objectives

- Reduce lead times
- Strengthen industrial sovereignty
- Optimize designs and performance

Applications in shipbuilding

Material and process selection depends on the function of the part, performance requirements, production speed, and cost targets.

COMPLEX STRUCTURES

SPARE PARTS

REPAIR & MAINTENANCE

TOOLING

LIGHTWEIGHTING

CASTING & FORGING

Advantages for the naval industry

Why AM matters

Shorter lead times

Faster production of select components.

Cost reduction for complex components

Shorter manufacturing times.

Enhanced design freedom

Engineers can optimize geometries.

Decentralized manufacturing

Flexible, distributed production boosts supply chain resilience.

Improved sustainability

AM reduces material use and waste.

Challenges and limitations

COMPLIANCE AND QUALITY BARRIERS

- Certification and regulatory compliance
- Quality control and in-process monitoring
- High initial equipment investment

SCALE AND PROCESS CONSTRAINTS

- Industrial scalability
- Integration into existing processes
- Size

Conclusions

- AM complements conventional manufacturing;
- boosts naval competitiveness via flexibility, speed, design optimization
- strong outlook as digitalization, qualification, industrial integration advance.

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Gracias

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