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DEFINITION AND DEVELOPMENT OF “MODULARITY AND OPERATIONAL FLEXIBILITY” WITH PROS AND CONS OF THE CONCEPTS ACCORDING TO NAVY EXPERIENCE

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The Mission Package philosophy is tied to NATO concepts, indeed, the standardization of interface and procedures are essential for potential interoperability between Navies. Furthermore, the standardization and modularity offer opportunities of cooperation between Nations.

All NATO Navies are therefore facing the challenge of meeting current and future operational requirements while reducing procurement and life cycle cost of naval platform.

To this regard, the Italian Navy has adopted, over the last years, new design concepts in order to maximize operational flexibility for future needs by an extensive use of modularity features on its platforms.

The PPA experience combined with the mission package concept gives to the platform two levels of flexibility: in the short term, for the accomplishment of specific missions, known as Mission Modularity and the medium/long run to maintain “updated” the ship Mission capability.

This paper aims at underlining the Italian innovative approach used to develop the concepts of modularity and operational flexibility in the PPA experience emphasizing strengths and opportunities, as well as weaknesses and threats. While the PROs of modular equipment are more self-evident, there are also critical aspects to be considered. In fact, taking modularity to extreme might cause a too high reduction of platform performances in terms of: loss of accommodation space for the crew, in some cases loss of ship overall endurance, decrease of maximum speed and increase of vibration and noise.

Hence, only through an in-depth study on whole-warship design impact of Mission Bays and standardized modular areas, we would be able to underline the pros and cons of these concepts in the Italian Navy PPA experience.

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