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R&I solutions & Blue Culture Technology Hubs supporting Underwater Cultural Heritage research

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This work presents the framework of **BCThubs** project that operates in the space of Blue Culture Technologies (BCT) supporting the Underwater (UW) Cultural Heritage (CH) scientific research. The development of BCT Excellence Hubs and their promoted R&I solutions support, as regional ecosystems, the sustainable protection, restoration, valorization, management, and accessibility of UWCH by consolidating capacities of public sector, research/academia, NGOs, and business stakeholders. An innovative framework is under development that combines sensors information with navigational data and GIS-based software to provide high-quality 3D/4D UW representations. These R&I services will be linked to virtual reality (VR) technologies improving on-site and remote accessibility to UWCH via dry-dive; as well as to an augmented reality (AR) app that based on sensing solutions can augment diving capability. Ongoing additional developments combination of the 3D/4D models with real-time streams and AI algorithms aiming at detecting looting or degradation of UW assets.
The development of the BCT Excellence Hubs in Greece, Malta, Bulgaria aims at the establishment of regional ecosystems, where R&I actors will offer access to excellence, knowledge transfer and development of entrepreneurial skills. The technical support needed, as well as the digital maturity level of the Blue Culture value chain of the ecosystems will be analysed and assessed, towards receiving tools and support with respect to their UWCH missions. Overall aim is the management of UW heritage under threat, UW documentation, archaeological excavation, safeguarding, promotion and accessibility.

Keywords: Blue Culture Technologies; Excellence Hubs; degradation of underwater cultural heritage assets.