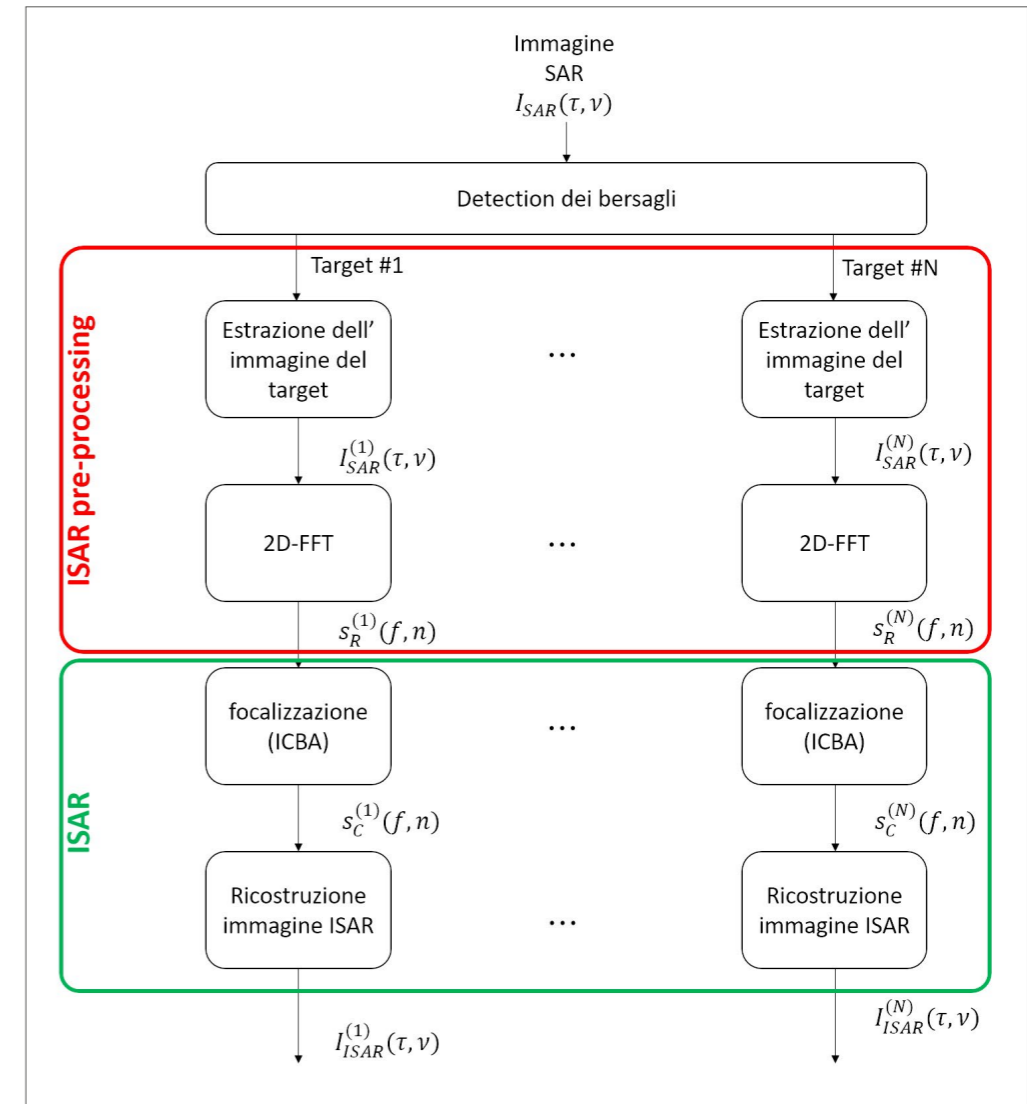
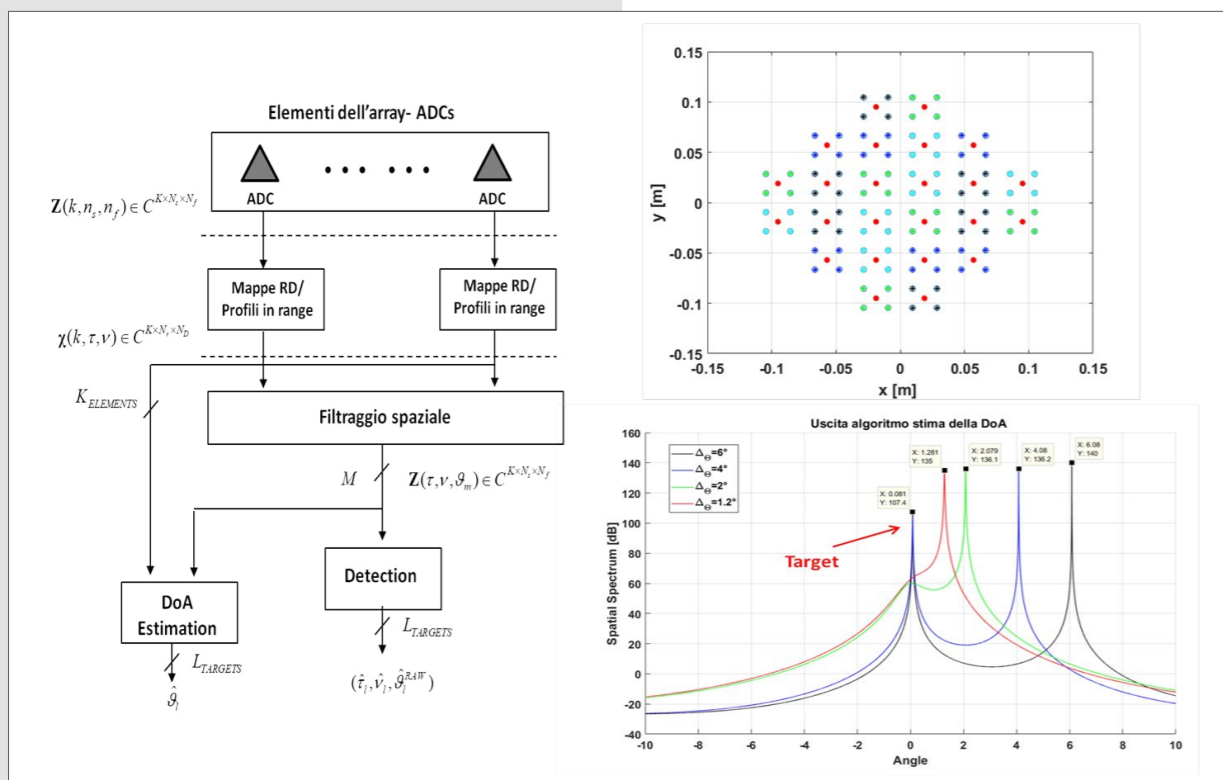


Traditional seekers use a mechanical scanning antenna, which limits the overall system performance. With the improvement of the latest microwave device technologies, Active Electronic Scanned Array (AESA) has become implementable in seekers. This allows for substantial performance improvements, which result in a significant increase of seeker's operational capabilities. In particular, SAMBA-X aims to improve seeker's performances with regard to increased target discrimination, resistance to ECM (ECCM) and greater longevity thanks to the improved Mean Time Between Failure (MTBF) obtainable with this technology. In summary, this project focuses on the study and development, for the first time in Italy, of a low-cost seeker demonstrator equipped with an ITAR-free AESA X-band antenna. The seeker under consideration has multirole capabilities, that is, it could also be used as a fire direction system on smaller ships. As part of this project, a demonstrator based on AESA technology will be built and validated in laboratory. Such demonstrator will implement a digital version of the classic "monopulse". The demonstrator will also be able to record "raw" data and make it available for offline verification of newly developed algorithms. Once validated, these algorithms will be available for future implementations (upgrades) either on the same demonstrator or on a possible, higher TRL, prototype.

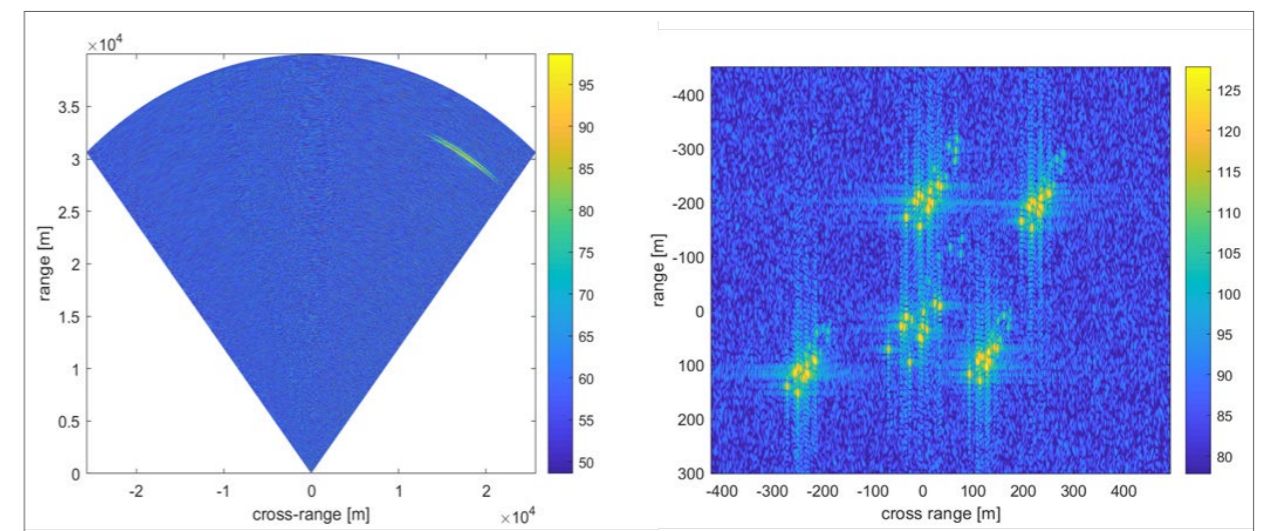
Technical Sheet	
Funding institution:	Italian MoD
Project partners	ELDES s.r.l
Project duration	February 2020 - February 2022
Involved countries	Italy



(b) The block diagram of the ISAR algorithm applied to the SAR, also called "ISAR from SAR"



(a) Preliminary DBF architecture and results obtained by applying DBF on AESA antenna divided into sub-arrays



(c) Preliminary results on the radar imaging technique application