

A review of the history of PA in NDT industry (Part1)

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Over the past three decades, Phased Array has undergone a remarkable evolution, transitioning from flat single-probe technology to a revolutionary technique. This paper provides a historical overview of its emergence in the field of Non-Destructive Testing (NDT) on a global scale, covering technical advancements, applications, commercial development, and key stakeholders involved. Initially, research laboratories played a crucial role in its inception, but it was the involvement of the medical field, with substantial budgets and a growing market, that facilitated the development of integrated instrumentation for NDT by inducing the availability of the required electronic components. Subsequently, Phased Array-based solutions were adopted by industries, supported by research institutes, to address challenges that conventional techniques were unable to tackle. A decisive turning point occurred when the nuclear industry, facing flexibility issues, recognized the potential offered by this technology. The following decade witnessed remarkable growth, with innovative NDT solutions arising from the convergence of technique and technology. This paper highlights significant progress achieved through Phased Array, enabling faster, more precise, and reliable inspections in various industrial sectors, including aerospace, energy, automotive, and Oil&gas. Leveraging its electronic focusing and scanning capabilities, Phased Array has overcome many limitations of conventional NDT techniques, leading to unparalleled defect detection, positioning, and sizing. In conclusion, this study offers a detailed overview of the evolution of Phased Array in NDT over time, revealing its substantial potential. To maximize its effectiveness and accessibility, continuous efforts in research, development, and collaboration are crucial for the benefit of the industry and society as we enter a new decade.