European Commission

LASHARE

LASHARE-Laser equipment ASsessment for High impAct innovation in the manufactuRing European industry. Manufacturing in Europe requires a high degree of efficiency to remain competitive and to keep production in Europe. This can be achieved by increasing the capabilities of manufacturing systems and training the workforce continuously. Both contribute to manufacturing products efficiently and strengthening the local economies significantly.

Project:
LASHARE

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Manufacturing in Europe requires a high degree of efficiency to remain competitive and to keep production in Europe. This can be achieved by increasing the capabilities of manufacturing systems and training the workforce continuously. Both contribute to manufacturing products efficiently and strengthening the local economies significantly.
Laser-based manufacturing systems have been contributing to this goal for many years. Several parts of today's car bodies, for example, are welded by lasers much faster and more reliably than ever before. In certain areas, such as light guidance in displays or wear resistance of rotating parts, lasers have become a valuable tool as technology enablers. For each of these applications, lasers with very short pulses in the range of pico seconds at high energies allow ablation of a variety of materials without significant heating of the material itself.

Such new laser processes often emerge out of an isolated solution demonstrated at a work bench. In many cases, such an innovation is created at small- and medium-sized enterprises where flexibility allows fast problem resolution or at research institutions where scientific studies reveal new cause-effect relationships.

Still, the gap between the demonstrated solution and the industrially robust manufacturing process bears several risks. Parts of the solution may be designed at times where final specifications were unknown or components may not be reliable enough for daily use. For small- and medium-sized companies, risks in market acceptance and time-to-market can be considered critical to their success in the global economy.

To develop laser based equipment for new processes successfully, engineers must focus themselves on the precisely identified industrial need, create a scientifically sound approach to the solution and implement a technologically robust product. And

this is exactly where LASHARE comes in.

LASHARE accelerates the maturing of demonstrated, technologically innovative laser-based equipment for advanced manufacturing. To do this, the LASHARE Assessment Framework establishes relevant objectives, metrics and measures to compare against existing Technology Readiness Levels (TRL) and to achieve an industrially robust solution.

The project covers technologies from macro applications such as laser welding in ship building to nano applications such as surface structuring through ultra short pulse laser ablation. The framework is designed to enable Laser-based Equipment Assessment (LEA) for each application conducted by partners from three different sectors: users, suppliers and researchers. Users define the industrial need for the laser-based equipment and finally validate it in a production-like environment. Suppliers, typically small- and medium-sized companies, use the laser-based equipment as an industrially robust solution that matches the needs of the industrial user. Research partners employ their scientific resources and background to establish the assessment framework and to provide supplements to the solution itself. Through these measures, the LEAs accelerate the transition from lab-proven solutions or prototypes to real manufacturing applications, thus helping innovative laser-based equipment and new processes/applications make it into the market quickly and successfully.

On a general level, the LASHARE Assessment Framework facilitates the transfer of technology to additional applications and markets and is based on an established metric for the evaluation of Technology Readiness Levels. LASHARE Competence Centres (LCC) are being established on a European scale to share knowledge on laser based equipment and its use. As an interface to external parties, they are a key for disseminating information and best practices, promoting the use of laser equipment and expanding results to other application sectors. They will provide advice, support and training, targeting at SME and industry level suppliers and users alike.

LASHARE brings together the know-how and resources of six of the EU's most renowned laser research centres along with equipment suppliers and industrial users. Fourteen LEAs are included at project start and 8 to 12 additional LEAs will be added through a competitive call. LASHARE focuses on SMEs, enabling them to create new products to benefit European industry. In total, more than 30 SME partners will benefit from FP7-FoF support, expertise from research centres, and the direct collaboration with industrial users, all of which will create trust and thrust for adoption.

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