Voices Shaping the Future of Laser Manufacturing – Linda Eller-Shein

Civan Advanced Technologies Ltd. (AKA Civan Lasers) is an Israeli deep-tech company developing next-generation high-power industrial lasers based on coherent beam combining (CBC) and optical phased array technologies. The company is known for its "Dynamic Beam Laser" platform, which enables real-time control of beam shape, focal position and intensity, allowing unprecedented flexibility and precision in laser welding and materials processing. This company plays a central role in the project Lasers4MaaS as the key technology provider for Dynamic Beam Laser (DBL) systems and beam-shaping capabilities.

Today, as part of the *Voices Shaping the Future of Laser Manufacturing* series, we interviewed Linda Eller -Shein, Project Manager at Civan Advanced Technologies Ltd. Linda will share her experiences from a deep-tech photonics company and give us her perspectives on Gender Balance and her ideas to continue promoting equal opportunities, visibility and diversity within the European innovation ecosystem.

1. Could you briefly describe your role in Lasers4MaaS and your involvement in the project activities?

Linda: I am the Project Manager from Civan Advanced Technologies involved in the Lasers4MaaS project. My background is in management, consulting, and business administration, and I hold an MBA degree.

Within the project, my role is mainly focused on project administration, coordination, communication, and operational management. I work closely with different departments and consortium partners in order to facilitate the work of engineers and researchers as much as possible, reduce bureaucratic workload, coordinate reporting and documentation activities, and help ensure that project objectives and timelines are achieved efficiently.

A significant part of my work involves creating connections between technical, management, legal, financial, and administrative teams to support smooth collaboration and decision-making processes.

2. How would you describe gender balance in your organization, particularly in technical or leadership positions related to photonics and advanced manufacturing?

Linda: At Civan, we consider equal opportunity very important, and we genuinely try to integrate women into different roles across the company. We have women involved in management positions, PhD-level research activities, engineering roles, team leadership, laboratory activities, and decision-making processes.

At the same time, we have to be realistic and acknowledge that the number of women in highly technical fields such as optics, photonics, and advanced engineering is still relatively low. In practice, when we advertise highly technical positions, it is still uncommon to receive applications from female candidates compared to male candidates.

In our experience, this challenge begins much earlier than the recruitment stage. It is connected to broader educational and societal patterns, including early exposure to engineering and technical disciplines during childhood and school years.

In recent years, both in Israel and across Europe, governments and educational systems have been investing more effort into encouraging engineering and STEM (Science, Technology, Engineering, Mathematics) studies among young students, especially girls, due to the growing shortage of engineers and technical professionals. This is an important and positive direction.

3. Do you consider gender balance and diversity important for innovation in industrial photonics? Why?

Linda: Yes, absolutely. I believe gender balance and diversity are very important for innovation, including in industrial photonics and advanced manufacturing.

Different perspectives, experiences, and ways of thinking contribute to stronger discussions, better problem solving, and more creative approaches to innovation. Diverse teams can improve communication, collaboration, and understanding of user needs from multiple perspectives.

I also believe it is important that women continue to be encouraged to enter technical and leadership positions in deep-tech industries, where they are still underrepresented today.

At the same time, I strongly believe that professional competence, education, experience, and talent must remain the primary criteria for recruitment and advancement decisions.

4. Do you feel women and underrepresented groups have equal opportunities to contribute to technical decision-making, work package leadership, dissemination and visibility activities, industrial stakeholder engagement, and innovation discussions?

Linda: From my experience within Civan and the Lasers4MaaS project, I do believe women have equal opportunities to contribute to project activities, decision-making processes, dissemination, stakeholder engagement, and management discussions.

For example, within our organization, technical and strategic decisions involve both male and female professionals in leadership positions. We currently have both male and female department heads contributing to the project from different professional perspectives, including engineering, application development, management, and coordination.

I have not personally observed discrimination in project-related decision-making or visibility activities.

5. Have you observed barriers to participation or advancement in your sector?

Linda: I would not describe the situation primarily as direct barriers inside companies or projects. In my opinion, the challenge begins much earlier in the educational and social pipeline.

There is still a relatively low number of women entering highly technical engineering fields such as optics, photonics, and advanced manufacturing. As a result, companies naturally receive fewer female applications for these positions.

In fast-moving industrial environments, companies must recruit qualified employees according to project and business needs. When there is an urgent need for engineers or technical experts, recruitment decisions are mainly based on professional qualifications, experience, and availability.

Therefore, I believe the main focus should be on increasing equal educational opportunities and encouraging greater participation of girls and young women in STEM fields from an early age.

6. Are there specific challenges in industrial deep-tech environments that affect gender balance?

Linda: Yes. Deep-tech sectors such as photonics, optics, and advanced manufacturing are still traditionally male-dominated industries, especially in highly technical engineering positions.

The challenge is partly connected to the educational pipeline and to the overall shortage of engineers in the market. Companies often compete for a very limited number of highly qualified specialists.

Another challenge is that industrial environments can sometimes still be perceived as less attractive or accessible to women compared to other professional sectors. This is gradually changing, but progress takes time.

7. Are gender aspects sufficiently considered in technology development, user engagement or deployment pathways where relevant?

Linda: In my opinion, Lasers4MaaS demonstrates awareness of diversity and inclusion principles and provides equal professional opportunities within project activities.

At the same time, the project itself is highly technology-driven and engineering-focused, so gender-related considerations are more relevant at the organizational and ecosystem level rather than directly within the laser technology itself.

I believe the most important contribution projects can make is maintaining professional equality, inclusive collaboration environments, and equal opportunities for participation and visibility.

8. What obstacles remain to achieving better gender balance in photonics and advanced manufacturing ecosystems?

Linda: The biggest challenge remains the relatively small number of women entering technical engineering education and specialized deep-tech career paths.

This issue is influenced by educational, cultural, and societal factors that begin long before recruitment into companies or projects.

Another challenge is the general shortage of engineers and technical professionals in the market, which limits recruitment flexibility for companies operating under strict industrial timelines and project commitments.

9. What additional actions should Lasers4MaaS implement?

Linda: I believe Lasers4MaaS should continue promoting equal participation, visibility, and professional opportunities for all contributors regardless of gender.

The project can also continue supporting dissemination activities that highlight diverse professionals working in photonics and advanced manufacturing, including women in leadership and technical roles.

However, I believe long-term gender balance improvements mainly depend on educational systems, early STEM engagement programs, and broader societal initiatives rather than on individual industrial projects alone.

10. What practices should continue beyond the project?

Linda: Practices that should continue include:

- equal professional opportunities,
- transparent recruitment and promotion processes,
- inclusive decision-making environments,
- support for professional development,
- visibility for women in technical and leadership roles,
- and collaboration between industry and educational institutions to encourage future generations to enter STEM fields.

11. What recommendations would you give for future EU projects in this area?

Linda: Future EU projects should continue encouraging diversity and inclusion while maintaining strong professional and technical standards.

I believe the most effective long-term approach is investing in:

- equal educational opportunities,
- STEM programs for young students,
- initiatives encouraging girls to pursue engineering and science,
- balanced maternity and paternity policies,
- and stronger industry-academia collaboration.

At the same time, recruitment and leadership positions should continue to be based primarily on qualifications, competence, experience, and professional suitability.

The goal should be creating equal opportunities for everyone to succeed professionally while maintaining excellence and innovation within the sector.