

New Decade  
New Logo  
Same Mission

# EU Industrial Ultrafast Ecosystem

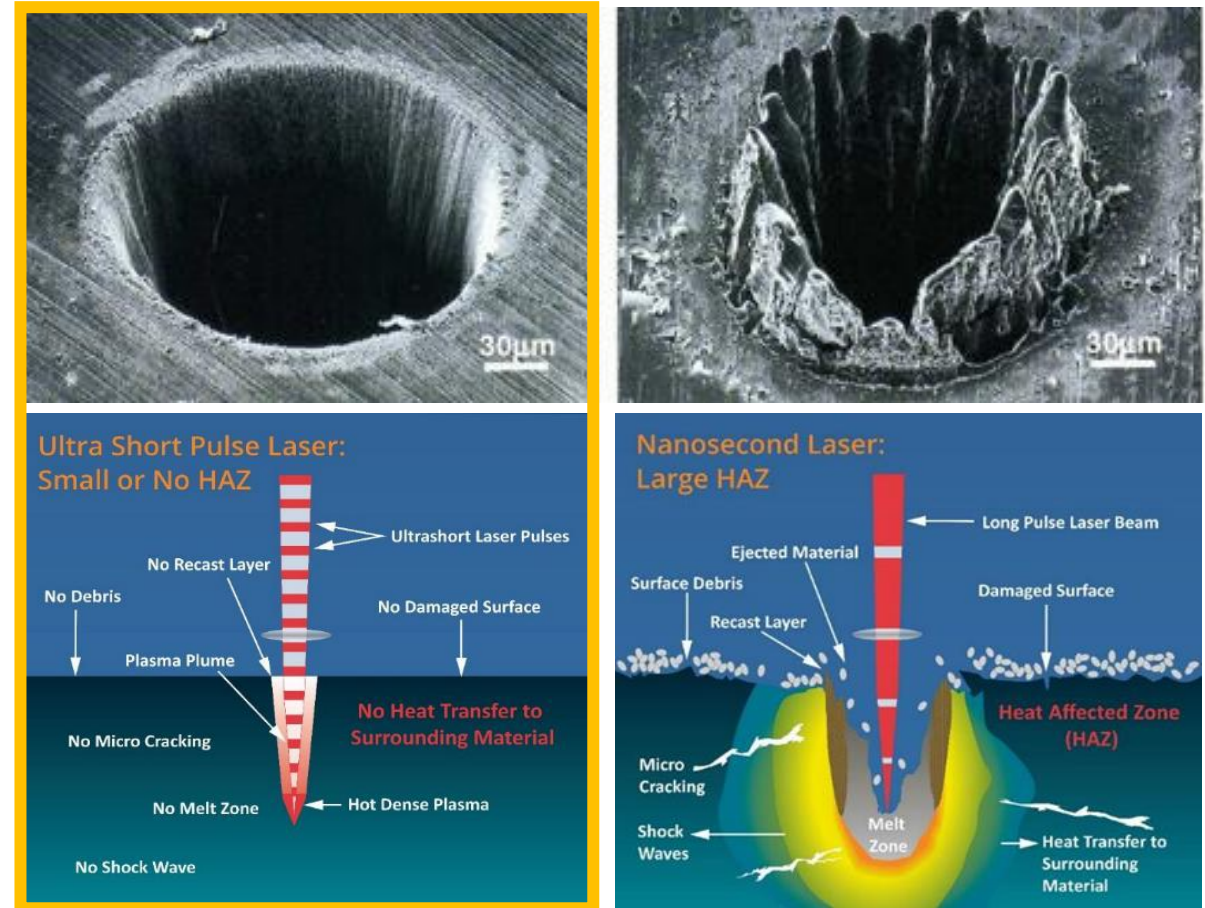
# EU Industrial Ultrafast Ecosystem – Address Main Challenges Ahead

## Agenda:

1. Why Ultrafast Laser Processing?
2. EU Ecosystem by Market Segment
3. Opportunities by Applications and Initiatives
4. How Address Main Challenges?

# Why Ultrafast Laser Processing?

- ❑ **Quality: Less HAZ**
- ❑ **Process Enabling**
- ❑ **Spatial Resolution**



Source: Chichkov et. al. 1996

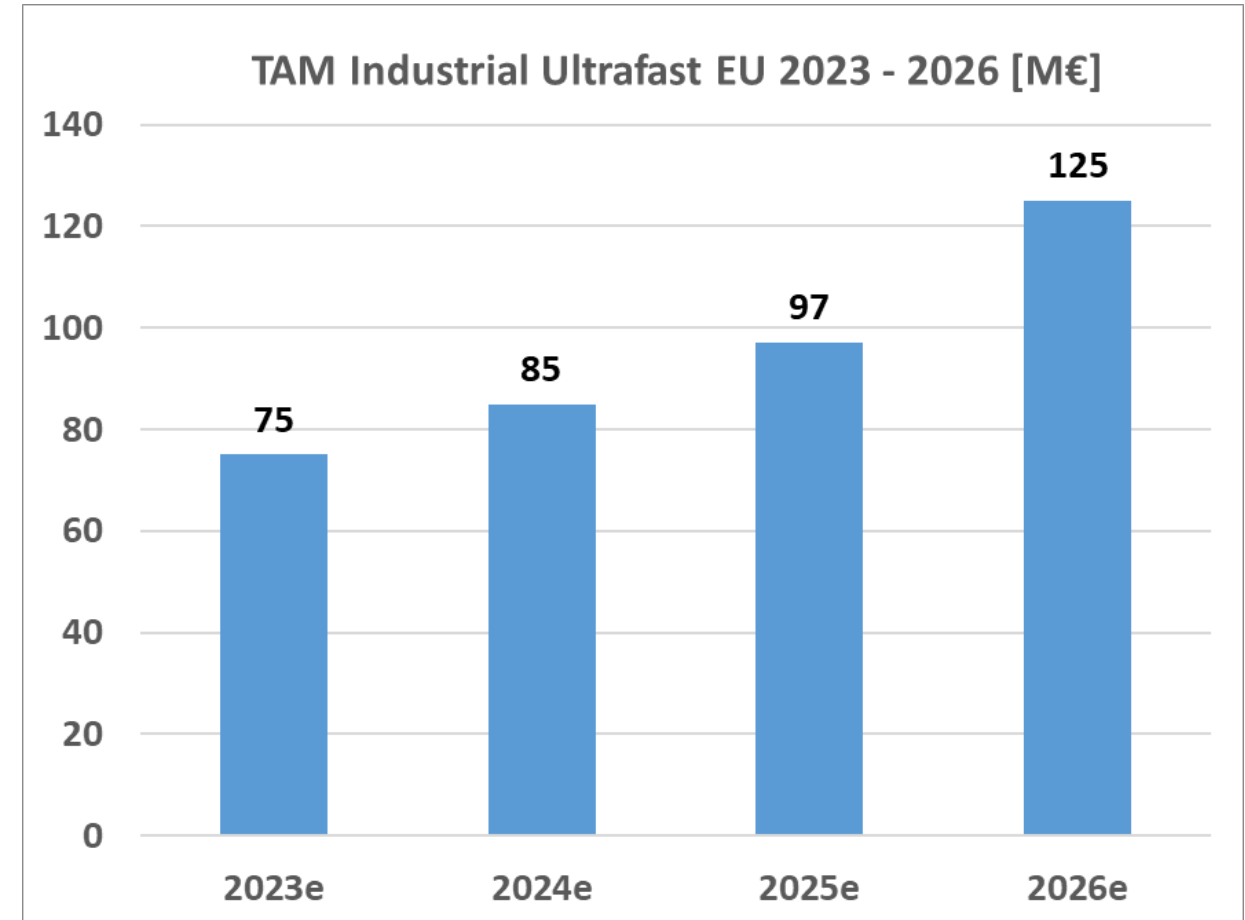
# EU Ecosystem Total Adressable Market

## Report shows:

- ❑ >\$600M Global Market 2022  
5.000 units, ASP: \$120k

## Bottom-up EU:

- ❑ EU market share: 10-15%  
~1100 units, ASP: ~70k€

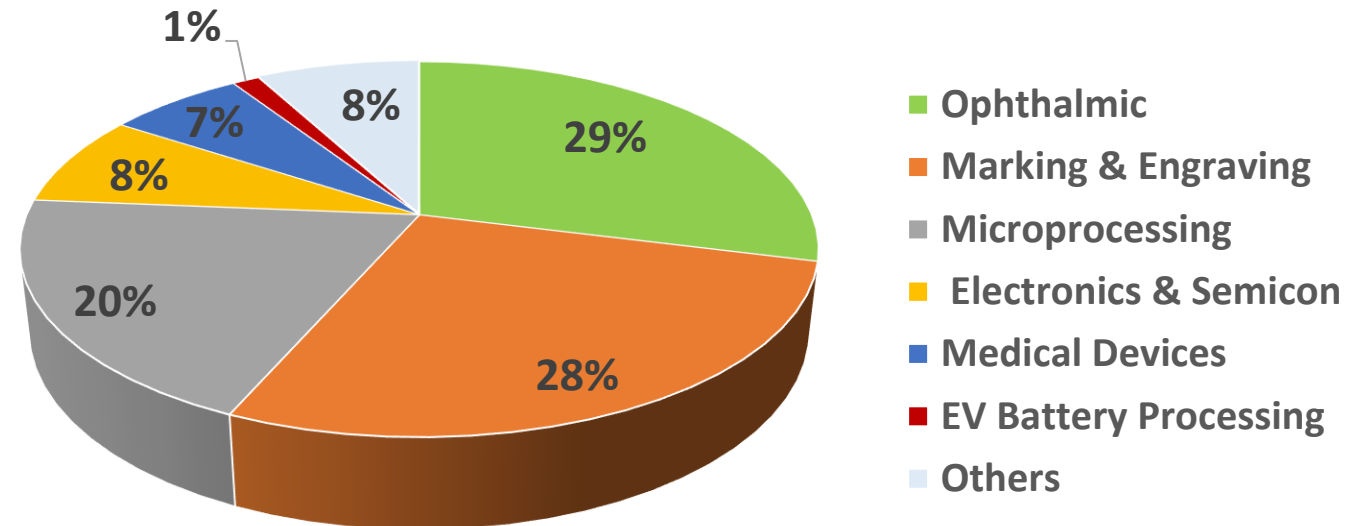


# EU Ecosystem by Application

## Why is EU ASP so low?

- ❑ 60-70% as Marking, Engraving, Ophthalmic use relative **low avg. power** (5-50W)
- ❑ >90% are **NIR** Wavelength

Market Share by Application 2023e



# EU Large Initiatives

- ❑ **Battery Manufacturing** (~1TWh/a by 2030)
- ❑ **EU Chips Act** (~50B investments, B's subsidies Intel )
  
- ❑ Focus today: **Structuring in Solid State Batteries**
- ❑ **Goals:** re-charge <10min (<50% reduction)  
& increase the lifetime of cells (>1000 cycles)



# Recent Results – Solid State Batteries

## ❑ Separator Material

LATP (Lithium Aluminium Titanium Phosphat)

LLZO (Lithium Lanthan Zirconium Oxid)

## ❑ Motivation

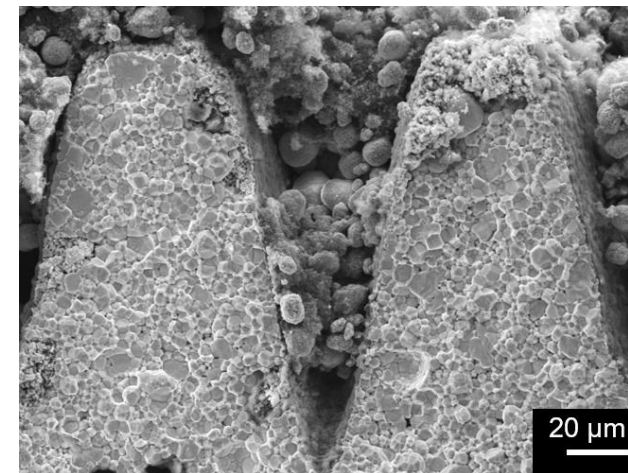
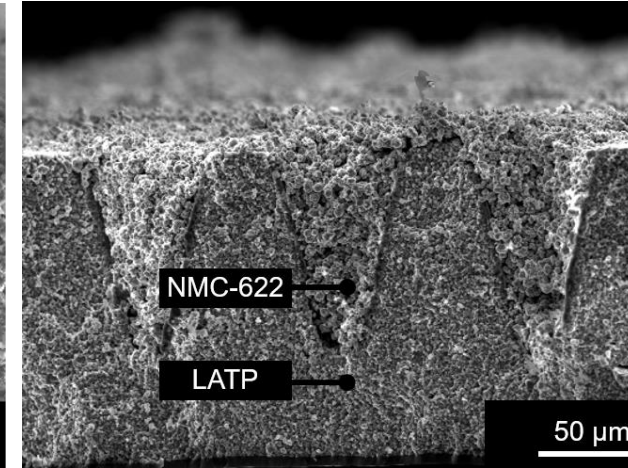
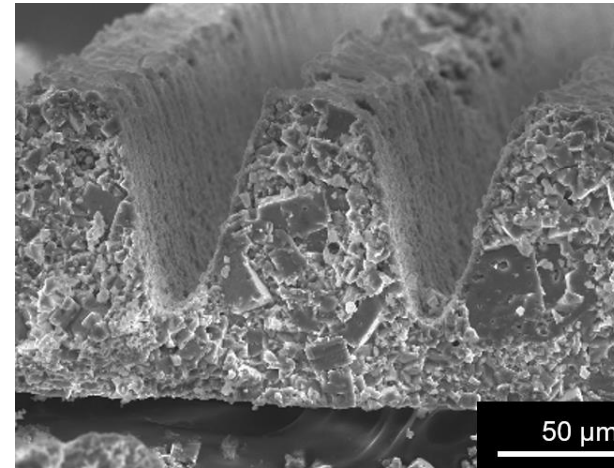
Surface enlargement enabling improved ion transport

## ❑ Results:

PE: 50 $\mu$ J, Pulse Overlap 80%, multiple iterations

Web speed: 1m/s, width: 300mm

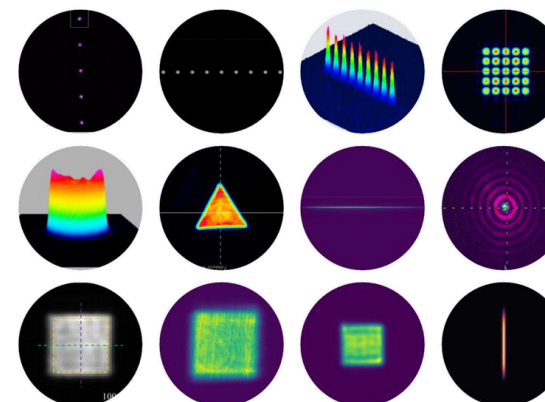
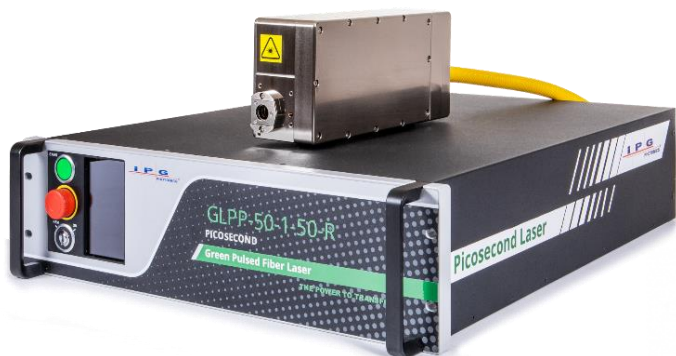
Requires: **10's kW avg. Laser Power per 1GWh/a**



Source: 

# EU Ecosystem - Leading in Technology

- ❑ High Avg. Power
- ❑ Ultrafast Beam Deflection
- ❑ Smart Energy Distribution





# We Face Many Challenges Today

**What do you think is the main one?**

Energy Saving

Productivity  
Improvements

Cost per Part

CO2 Saving

Delivery Time

Workforce

Supply Chain Risk

Reliability

Floor Space  
Optimization

# Why Main Challenge?

## Secure Skilled Workforce (2stay) Attract Young Talents (2join)

**#1:** Lack of workforce **limits growth** of our industry

*Fact check: ~1M open jobs in Germany\**

**#2:** Strongly **compete with other „TECH‘s“**

*Fact check: „US Semicon industry in shortage of 70k-90k employees“\**

**#3:** Work load and fluctuation of employees is **unhealthy**

*Fact check: 18% are in **quiet quitting mode**, 44% think frequently about **change job** (all time high)\**

*\*Source: Statista, NYTimes online 230519, Gallup Engagement Index 2023*

# Attract Tech Talents: War or Playground?

## What do we need to change?

- ❑ **Culture:** It start's but doesn't end with the recruiter!
- ❑ **Young DNA** needed in our industry!
- ❑ Improve Employee Wellbeing
  - **Happiness & Emotional Binding** @ Work is important
  - Sensitive to **Purpose & Meaning**
  - **Flexibility**

# Research Shows... **Happines@Work**

#1: Appreciation for your work

#2: Good relationships with colleagues

#3: Good work-life balance





#4: Good relationships with superiors

#5: Company's financial stability

#6: Learning and career development

...

#8: Attractive fixed salary

-  Compensation package
-  Work environment
-  Job content and opportunities
-  Company reputation and image



Source:

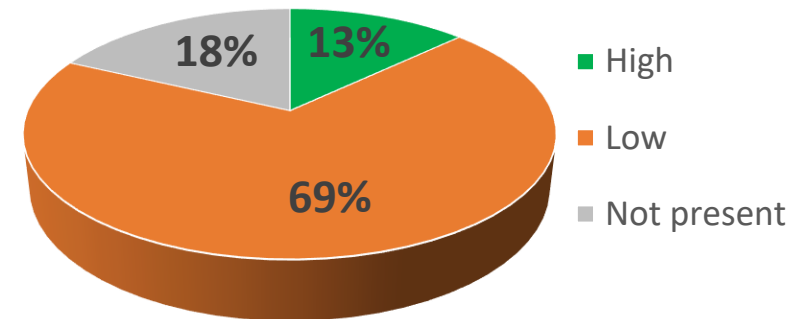
# Research Shows... The Effect of Emotional Binding

## The Effect of „High Emotional Binding“

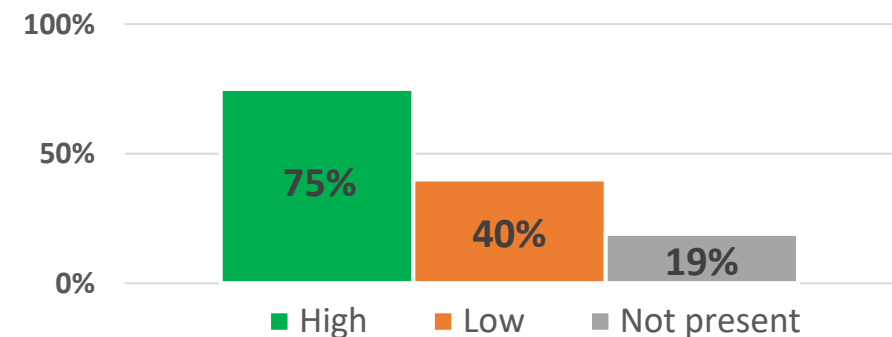


Source: Gallup Engagement Index

Emotional Binding



Recommendation Rate (company & products)





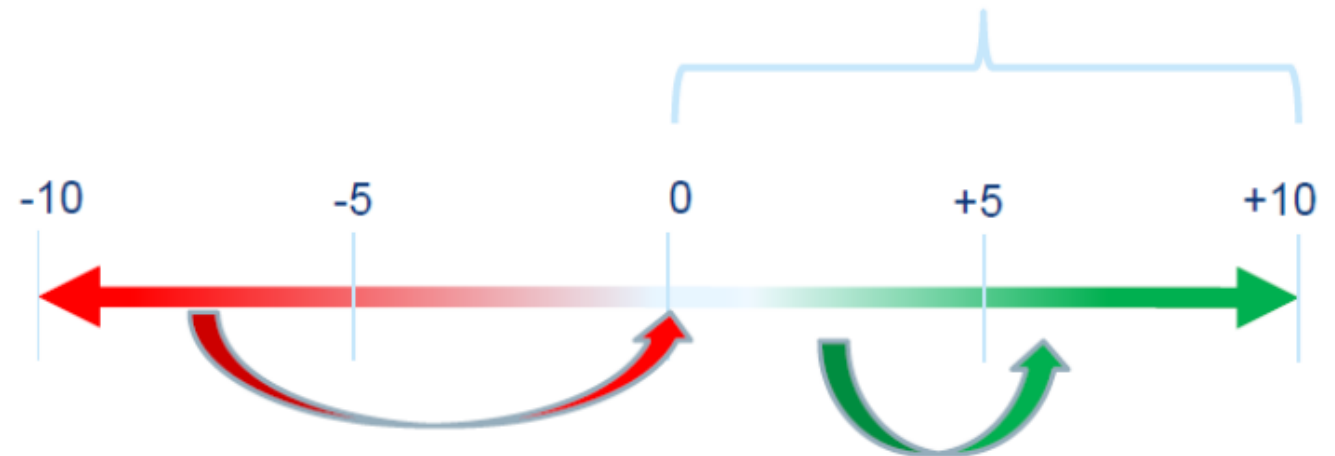
# How Do We Improve Emotional Binding? By Evidence Based Leadership Methods!



Prof. Dr. Martin Seligman

Clinical Psychology

Positive Leadership








Focus: reduce deficits

Focus: strengths & competences

# Positive Leadership is...

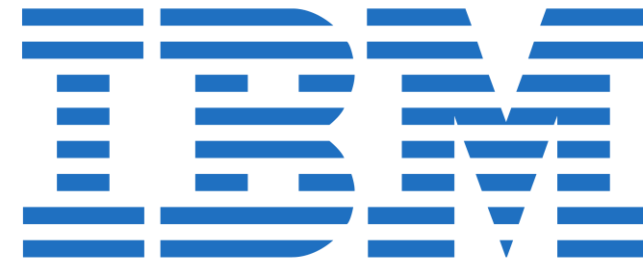
What **Positive Leadership** actually is...

-  Encourage **Positive Emotions**
-  Recognize and develop **Strengths**
-  Share **Meaning @ Work**
-  Develop strong **Relations**
-  Stimulate **Accomplishment**

What most THINK **Positive Leadership** is...

-  Focus **ONLY** on positive things and avoid conflicts

# „Tech’s“ Implemented Positive Leadership



# Know & Own Your Strengths!

- ❑ High performance is **based on strength**
- ❑ Using >4 strengths @work improves **resilience, wellbeing & happiness**

❑ Strength Tests:

<https://www.charakterstaerken.org>

[StrengthsFinder 2.0 | DE – Gallup](#)

*McGrath, R. E. (2019). Technical report: The VIA Assessment Suite for Adults*

*Peterson & Seligman (2004). Character strengths and virtues: A handbook an classification*

# What can I dor for you?

## Call for Action: **Best Practice Sharing**



**Thank you for your attention**

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