

Lasers for Productivity: UK strategy



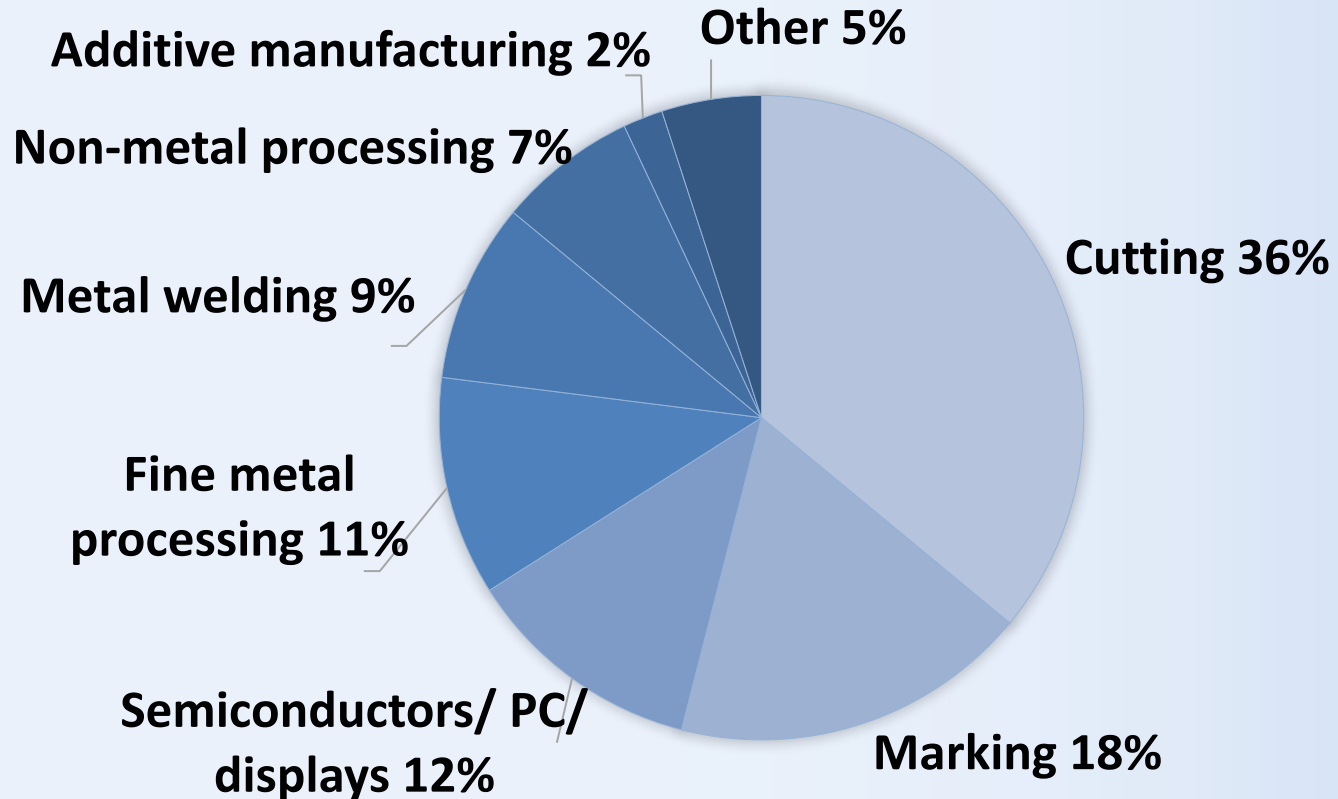
“Our vision for UK manufacturing is for laser processing to be the norm and not the extraordinary”

Al-SiO₂

Cu-SiO₂

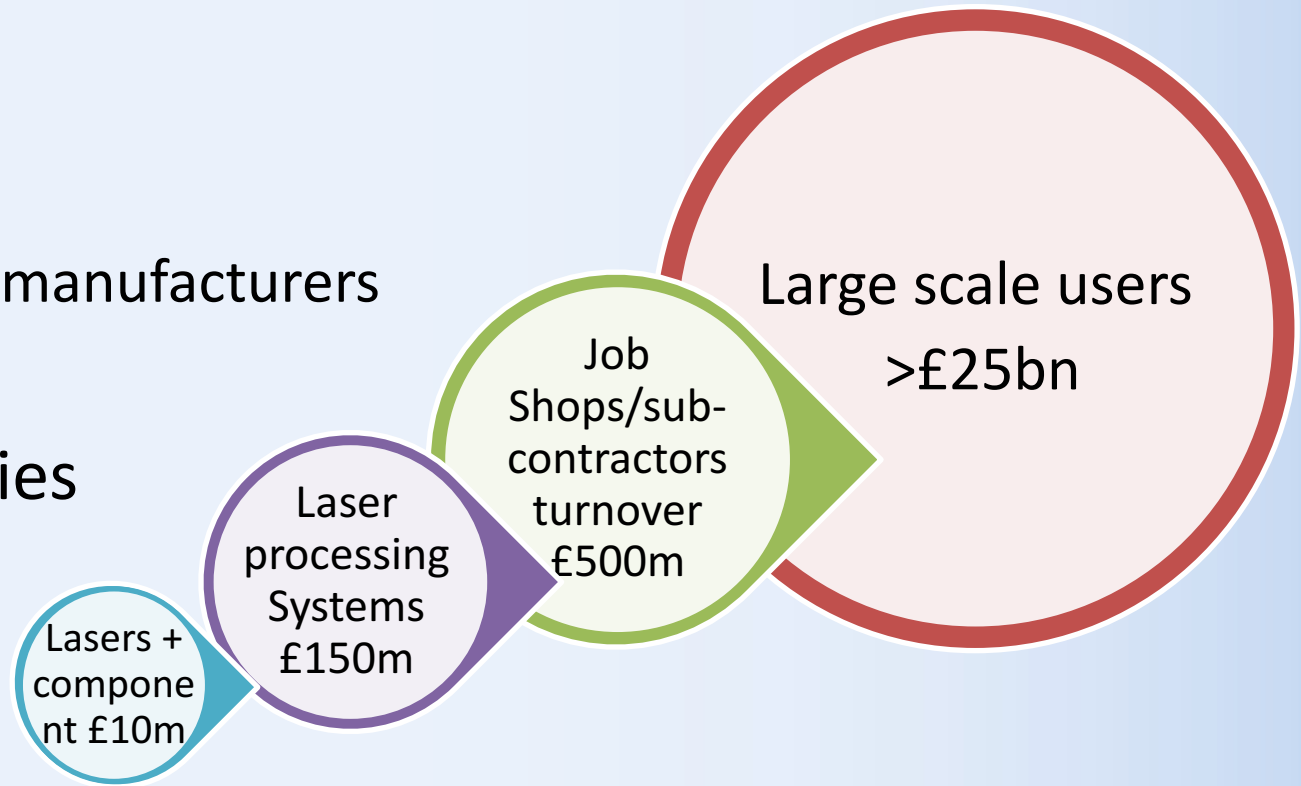
State of the industry

GLOBAL LASER MATERIALS PROCESSING APPLICATIONS 2016



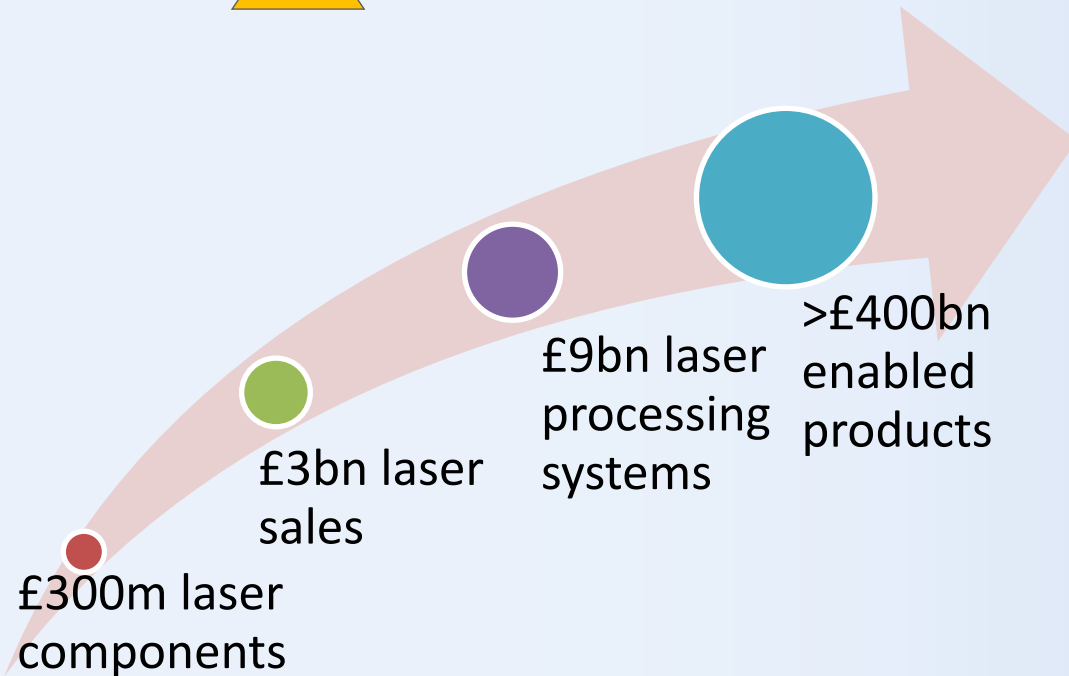
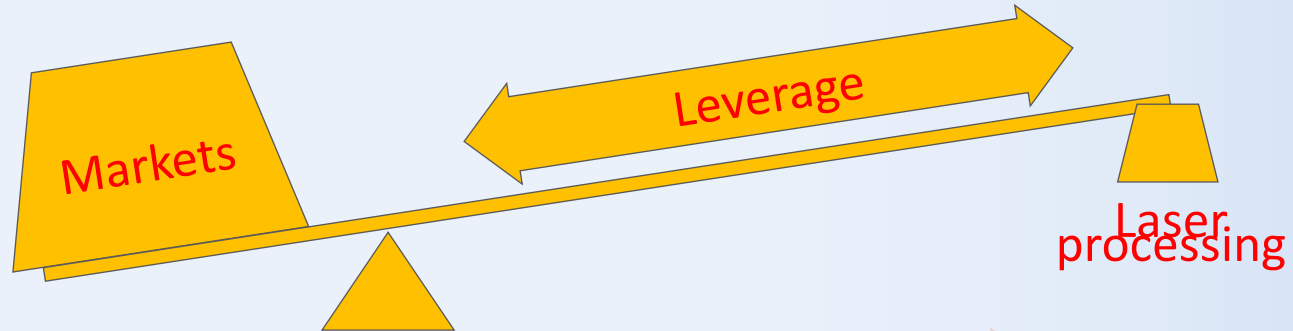
State of the industry in UK

- UK strengths:
- SMEs
 - Components
 - Laser system manufacturers
 - Job shops
- Large companies
 - Aerospace
 - Automotive
 - Defence
- University/RTO research base
 - Leading to spinouts





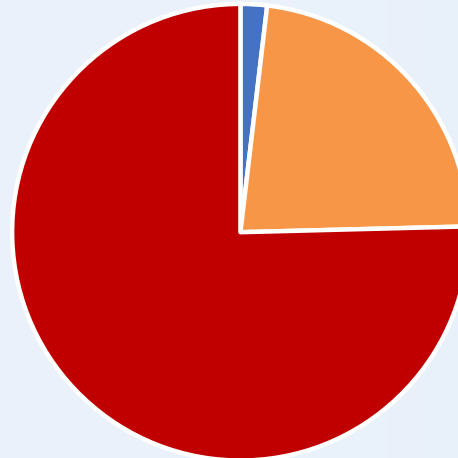
Manufacturing Leverage



Scale of exploitation

- **Recurring theme** – low exploitation of lasers in UK manufacturing
- UK laser and laser systems manufacturers export 80% - 100% of output
- Much higher take-up in competitor countries e.g. Germany

Relative exploitation of lasers in manufacturing



■ Less than the UK

■ Same as the UK

■ More than the UK

Barriers to future UK growth

- Skills
 - Operators/technicians; graduate engineers; R&D engineers
- Finance
 - High capital cost
- Standards and consistency
 - Not plug and play!
- Feasibility demonstration & process quantification
- Risk perception
- Health and safety concerns
 - Lack of knowledge
- Automation and scale-up
 - Robotics take-up also limited in UK
- Asymmetry in industry size (SMEs vs key global customers)

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Bold – priority barriers

Action plan

Access to Finance

- SME Capital equipment purchasing support
- Innovate UK Loans

Process demonstration and customisation for SMEs

- Return-on investment demonstration
- Decreasing investment uncertainty

Laser Process innovation

- Priority in Innovate manufacturing and materials
- Material laser interaction

Skills & training

- Increasing availability of technical education
- Early experience of laser processing
- Design for laser manufacture

Manufacturing productivity

Industrial strategy

- Incorporating key role of laser processing
- Sector Deal for laser processing

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- **Sector Deal for laser processing**