

# Virtual UK Laser Technology Innovation Centre

## Draft Proposal V1.0

17 March 2011

Professor Lin Li

Chairman, Process and Product Innovation Group, Association of Laser Users

### 1. Rationale

There have been a large number of new inventions from the UK R&D centres over the last 20 years. Some have generated considerable impacts internationally such as hybrid welding, blow-powder laser cladding. The technical innovation in the UK laser processing community, however, has been slow due to the fact that there is a large gap between the university research (TRL1-3) and industrial implementations (TRL6-9). Each university research group has its own specific expertise and facilities and works directly with the end users. Often the technologies developed are not implemented in the industry due to the lack resources and expertise to develop and validate the specialised systems and processes developed at the universities. In addition, there is lack of critical mass to compete internationally or internationally for large projects. Therefore there is a need to have a large virtual laser technology innovation centre combining the UK R&D centres, system supplier/integrator and user group as a consortium for bidding and competing for large projects and carry out rapid commercial technical innovation projects.

### 2. Purpose and the vision

To create a world's largest laser processing R&D and technical innovation chain/consortium to enable rapid new product and process development and implementation of innovations from TRL1 up to TRL9 and for bidding large commercial projects and government grants.

### 3. Structure

The virtual UK laser technology Innovation centre will have members consisting of academic research groups (TRL1-4), commercial R&D organisations (TRL4-6), equipment suppliers, system integrators, job-shops and consultants to provide full new technology product and process development and implementation services up to TRL9. The centre will have a number of themes including:

- Laser cutting, machining and drilling
- Laser welding, brazing and soldering
- Surface treatments and processing (cladding, hardening, cleaning etc)

- Additive manufacturing
- Micro/nano fabrication
- Sensing, NDT and measurements, instrumentation
- Material characterisation
- Modelling and simulation
- Hybrid processes
- Special processes (e.g. shock peening, forming,
- Systems and integration
- Laser sources

#### 4. Operation

The centre will register as a charity organization, independent of universities and companies. The centre will have a Management Board, Theme Leaders and a business coordinator to coordinate the activities. Each member or partner of the centre will provide details of facilities and R&D capabilities within their organisation. The finance, marketing and business will be managed by the centre (through the management board and theme leaders) and projects are sub-contracted to members who can bid for the tasks issued by the management board. The centre will seek to develop project proposals for government funding and commercial funding to support basic staff (e.g. IT, accounting, admin, sales and marketing, business development etc.). For each project won, the centre will appoint a project manager for the monitoring and delivery of the services and development work. All the initial set-up work and cost will be bared by the founding members. A working group will be set up to develop the centre.