Special Interest Group in Surface Engineering and Advanced Coatings

EMG Meeting
21 May 2013

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• The Special Interest Group (SIG) is a tripartite collaboration between the Materials KTN, Nanotechnology KTN and Chemistry Innovation KTN and will be led by the Materials KTN
• Other KTNs involved are Aerospace & Defence, Energy Generation & Supply, HealthTech & Medicine, Biosciences and Transport
• The SIG started on the 1st May 2013 and will finish on 31st March 2014
Background

The application of Surface Engineering technologies is one of the 22 national competencies identified by the Technology Strategy Board’s report “A landscape for the future of high value manufacturing in the UK”.

A 2012 Materials KTN review, supported by five other KTNs, recommended three priority areas to be addressed:

- Move to a predictive design concept for surface engineering systems;
- Development of a range of bioactive surface solutions, such as antibacterial and antifouling coatings;
- The application of surface engineering solutions in several areas of energy generation and supply, with particular reference to renewable energy technologies.
The SIG will conduct a technology and innovation needs analysis in order to recommend specific areas where TSB investment will help UK manufacturing realise the large market opportunities opened by the application of surface engineering.

The activity of the proposed SIG will build on the work led by the Materials KTN to:

- include other key sectors of the UK economy, such as Food & Drinks;
- benchmark UK capability against international competitors;
- map out TSB investments in surface engineering over the last 5 years;
Background

- evaluate the pipeline of emerging technologies of benefit to UK manufacturing, e.g. use of graphene;
- address the priority areas already identified and to identify any others that might have been missed;
- map out how UK manufacturing competency in surface engineering can be further developed by the HVM Catapult.
An Advisory Group will be set up to steer the SIG activities and provide a forum for the analysis of information. The Group will be constituted of around 12 core members to ensure efficient working, drawing members from senior industrialists, academics and senior members of RTOs experienced in surface engineering. After an initial launch meeting at the start of the project, the Group will meet every 6 - 8 weeks.
Main Challenges

By definition, surface engineering comprises a suite of surface treatment/modification technologies, which collectively are key enablers to product performance across a wide range of application sectors. To advance from its current position, surface engineering faces the following important challenges:

- emerging (globally large) market opportunities - the UK Surface Engineering supply chain must equip itself to create competitive advantage in pursuing these

- a realistic view on international competitiveness is necessary - a thorough benchmarking against international capabilities is an important element in identifying distinctive competitive advantages for UK manufacturing
Main Challenges

• A perceived weakness of surface engineering solutions has often centred on their reliability and robustness and the empirical approach of the sector in developing new products. Although the industry has identified a need for underpinning technologies and information, such as predictive design of surface engineering systems, computer infrastructure and shared performance data to tackle these issues, it has failed to implement this approach.

The Special Interest Group will explore the industry barriers and routes to their adoption.
Workplan and Schedule

T1: Capacity, Capability and Drivers for Change
Month 1 - 6

T1.1 - Characterising the capacity and capability of technology providers and other supply chain members and their R&D activities
T1.2 – Identifying drivers for change
T1.3 – Benchmarking the position of the UK SE sector within the global market

Resource
The above tasks will be undertaken by the Tripartite KTNs calling on the support of other KTNs as appropriate to provide specialised knowledge of respective sectors or technology.
T2: Analysis and Validation of Findings
Month 2 – 9

Information analysis will be undertaken concurrently with the Information Gathering phase. Regular reports will provide timely views to help monitor and shape Information Gathering and Analysis activities.

In Month 8, a 1-day workshop (Stakeholder Validation Workshop) attended by the Advisory Group, KTNs and TSB staff, will review the information gathered and discuss the results of the analysis.

Resource
The Tripartite KTNs will undertake the above tasks.
T3: Supply Chain Validation of Results
Month 9 - 10
A cross-section of the surface engineering supply chain will be invited to a second validation workshop to canvas their views of the draft report. The event will be organised and facilitated by the Tripartite KTNs, but call on other stakeholders to provide views and insight as appropriate.

T4 FINAL REPORT AND DISSEMINATION
Month 11
The final project report will be produced considering the feedback from the second validation exercise
Anticipated Impact

• The overall aim of the Special Interest Group is to assist the Technology Strategy Board in its investment decisions in addressing technology gaps that may be preventing the realisation of Surface Engineering as a national competency for high value manufacturing.

• The SIG will work with the UK supply chain and end users to produce an independent report validated by the manufacturing community. The report will define means of increasing the effectiveness of the UK in surface engineering to address key challenges and of opening significant world markets faced by sectors important to the UK economy.
Anticipated Impact

- The report will confirm the strengths of surface engineering in the UK and identify barriers and enabling actions to ensure a smooth transition of innovation through the Technology/Manufacturing Readiness Levels to full commercial reality.

- By linking technical challenges with estimates of future markets it will provide a route map to key developments, which will generate the evidence base to support investment decisions by the Technology Strategy Board and the research councils, as well as encouraging private investment.
Anticipated Impact

• The mapping of available pre-manufacturing assets against future requirements will provide important evidence-base to the HVM Catapult in deciding how best to position surface engineering amongst the suite of support provided to UK manufacturing.

• The recommendations may lead to TSB funding for Collaborative R&D in 2014/15.
Thank you for your attention!

For further information please contact

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