

- Conserving supply (via recycling)
 - Public sector tyres
 - More efficient use of energy (materials & processes)
 - Life cycle costs
 - Do we need to reappraise lifetimes/flexibility
 - Pressure from disposal costs
 - Acceptability/credibility of non-disruptive new ideas
 - Inherent cultural resistance to change
 - Risk /reward (education/communication)
 - How to engage with SME base
 - Pathways for new ideas

- Roadmap for realising developing future capability
 - Global pressures
 - Short-termism
 - Initial price barriers
 - Market structures & economic trends
 - Most industries are users
 - Issue of commoditisation of familiar products
 - Danger of gaps in the UK capability
 - Private/public sector interactions
 - Limits to grants (interdepartmental collaboration)
 - Does legislation add value to UK Ltd?
 - Public sector credibility
 - Sustainability of policies

- Materials Issues are:
 - Supply/availability of existing materials
 - New ways of making existing materials (new pathways)
 - Opportunity to exploit known reserves via new processes
 - e.g. use of microwaves for extraction
 - Processes to manufacture and develop new materials

- Importance of
 - Capture of value added issues & priorities for UK
 - Challenge is to define what we do NOW to give us a good position in 5-15 years
 - Government is a key purchaser. Has opportunity to lead on:
 - life cycle costing
 - procurement
 - Integration of governmental attitudes & actions
- Use of legislation to drive change

Break-out Group 2 **Science and Technology Feedback**

Facilitators : Robert Quarshie Secretariat/DTI
 Julian Thompson Secretariat/DTI

Main Points of Discussion

1. Main purpose of the meeting was to gather opinion on the key factors that affected all UK organisations in the Materials Sector; the changed global dynamics and resulting complexity of routes to market as a whole

Key questions to answer were:

Q1. Whether UK had the right Science and Technology capability to meet these challenges?

Q2. What are the gaps in this analysis and say how they might be addressed?

Executive Summary of key points

Overall – need to reach a balance between Research Council EPSRC funding and other managed schemes to improve outputs of Applied Research

1.1 Generate Science to apply science: push versus pull?
Recognise continuum between concept and commercialisation

1.2 Identify market opportunities for modelling and simulation

- Validation of simulation needs Materials data - a UK weakness
- Are we producing theoretical ‘boffins’ instead of practical engineers?

Action Point: Need to join together thinking between production engineers and those with the latest computer simulation design skills

1.3 Materials Community lacks critical mass and needs more experts before benefits can be exploited from having a bigger community

- Return to ‘good old days’ of having National Laboratories?
- Product testing also requires access to validated production data

Action Point: Need to supply seamless knowledge transfer expertise

1.4 Refocus or widen the ‘Biomaterials’ research definition

Main Points of Discussion

1. Main purpose of the meeting was to gather opinion on the key factors that affected all UK organisations in the Materials Sector; the changed global dynamics and resulting complexity of routes to markets as a whole

Key questions to answer were:

Q1. Whether UK had the assets and infrastructure capable of meeting these challenges?

Q2. What are the gaps in this analysis and say how they might be addressed?

Executive Summary of key points

- 1.1 Need for Industry, Academic and Regional links to be strengthened
- Risk that industry bodies work in isolation from reality and these are decoupled from funding sources, especially from Venture Capital
 - Although RDA support for small business is under review, regionally there remain wide differences between RDA support (e.g. University spin-outs)
 - RDAs do not yet possess transparent long-term strategies

Action proposed: Need for intelligent agents for IPR with commercial expertise to bridge the gap between organisations

- 1.2 UK risk aversion is hindering the potential for business growth
- 'Valley of Death' investment is needed to encourage commercialisation
 - If only 1% of Universities research results were commercialised, you would not invest in them
 - Intellectual capital is being seized by Universities who are too slow to license their research results

Action proposed: Revisit the way Universities commercialise IPR and whether 'Materials is a special case'

- 1.3 Need to improve expectations for Waste Management
- Priorities set regionally mean that companies receive different responses
 - Gap exists to recover embodied energy from materials
 - National strategy and regional implementation is unclear
 - Waste collection infrastructure is missing
 - Need for integrated and co-operative supply chains
 - Encourage mutual investment in capital equipment

- Taking UK plastics waste back to China is commended
- Welcome DEFRA Zero emission programme

Action proposed: Develop a regional strategy or infrastructure for plastics disposal. Also a Tax incentive route for funding more processing equipment will improve supply chain efficiency by minimizing waste

1.4 Issues with tooling and set-up for alternative materials

- Problem yet to be acknowledged
- Rapid manufacturing can significantly lower unit production costs
- Has impacts on design, new and existing materials.
- EC Directives are forcing supplies back up the supply chain, so that smaller 'exempt' companies are exposed, having invested in new moulding tools. Example REACH Chemicals PVC and Polycarbonate

Action proposed: Encourage supply chain solutions to avoid hiding supply chain problems. Also support trials for small runs using Rapid Manufacturing facilities (trials used to be free from the 'Technology Application' network)

1.5 Issues with Utility provision for new urban sites.

Overcome resistance to building infrastructure for green field sites

- Need to influence the Regulators to force Energy suppliers into action
- Deregulation problem as Infrastructure was last upgraded 20 years ago

Action proposed: Encourage incentives for upgrades that handle renewables and alternative energy sources. Also good opportunity to introduce lower embodied energy material

- Need organisations that provide practical experience for students to be more joined-up
- Regulation – particularly EU regulation – is applied too rigidly.

Next steps suggestions included:

- Government should speak directly to companies and hear from them what the specific shortages are.
- Pump-priming money should be provided to groups of companies to train people.
- Schools should be encouraged to be more proactive in working with local companies to promote awareness of materials careers.
- More places be provided on Engineering Doctorate courses focused on Materials