Business Excellence Through Inspired People

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The Future of European Manufacturing

The current Euro crisis has an important manufacturing competitiveness dimension. Nations with different levels of competitiveness are operating with the same exchange rate which favours the more competitive nations in international markets for manufactured goods; however this poses a serious burden on the less competitive nations. Germany has already become the largest manufacturing exporter in the world - ahead of China, Japan and the US, for example.

Manufacturing competitiveness is being tackled in Europe 2020 - the plan that is being led by the Commission to direct European strategy to the end of the decade. In their view manufacturing competitiveness can only be achieved by tackling the issues on a Europe-wide scale, rather than in individual member states. In addition, global manufacturing competitiveness lies at the heart of overall European economic competitiveness and spills over into other sectors such as services.

For some while the main focus of manufacturing policy in the Community has been the Manufuture platform. This has been driven by a vision of advanced manufacturing much of which is mostly German in origin. In the past two or three years UK policy has moved noticeably in this direction, first under Peter Mandelson and then with the Coalition and the emphasis on rebalancing the UK economy with advanced manufacturing as a key driver.

The mission of the European Technology Platform Manufuture is to propose, develop and implement a strategy based on research and innovation, capable of speeding up the rate of industrial transformation to high-added-value products, processes and services, securing high-skills employment and winning a major share of world Manufacturing output in the future knowledge-driven economy. For more information about the platform go to http://www.manufuture.org/manufacturing/

In Framework 7 which will operate until 2013 this agenda is carried forward in the NMP theme - Nanosciences, Nanotechnologies, Materials and new Production Technologies which covers nanotechnology and nanosciences, knowledge-based multifunctional materials and new production processes and devices. The aim of NMP is to improve the competitiveness of European industry and generate the knowledge needed to transform it from a resource-intensive to a knowledge-intensive industry. The budget in Framework 7 for NMP is 3.5bn Euros.

Industry Forum have been involved in some consortium discussions in response to a NMP call in 2007 led by a

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German R&D institute. We are also taking an interest in the current NMP call - particularly the elements which aim at creating conditions for continuous innovation and the development of generic production 'assets' (technologies, organisation and production facilities as well as human resources).

Framework 7 will be replaced by Horizon 2020 which will run up to 2020 and promises to be the largest ever R&D programme in history. An important thread in Horizon 2020 will be six manufacturing technologies which have been developed by comparing the technology priorities of Germany, France and the UK. The thinking behind this has been pushed forward by a High Level Group. David Willetts, the UK Science Minister, has been the most senior politician on this group. Their draft report was published in December 2010 and it is available at:

http://ec.europa.eu/enterprise/sectors/ict/files/kets/6_advanced_manufacturing_report_en.pdf

According to the report in the Community manufacturing represents 17% of GDP (significantly higher than in the UK) and 22 million jobs (which means that the UK is just over 10% of EC manufacturing employment). The six Key Enabling Technologies (KETs) are advanced manufacturing systems, photonics, nanotechnology, advanced materials, micro/nanoelectronics and biotechnology.

The education and training recommendations of the High Level Group are relevant to UK priorities and include:

- combine the education of world class scientists with the education of highly skilled engineers to manufacture and handle new materials and technologies at industrial scale
- ensure continuous skills development through life-long learning. Training should also address skills required for exploitation and cooperation along the value chain
- promote math and science studies, lifelong learning, opening up our education system, mobility between industry and academia and facilitate the re-skilling of personnel
- review visa policies to Europe which is currently subsidizing studies of foreign students
- ensure continuous skills development through life-long learning. Training should also address skills required for exploitation and cooperation along the value chain
- promote math and science studies, lifelong learning, opening up our education system, mobility between industry and academia and facilitate the re-skilling of personnel
- send strong positive political signals about the future of European manufacturing to attract people to careers in engineering and sciences
- review visa policies to Europe which is currently subsidizing studies of foreign students who take the knowledge they acquire in Europe back to their home country as they cannot get visa

The Commission page on KETs can be found at:

http://ec.europa.eu/enterprise/sectors/ict/key_technologies/index_en.htm

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The Commission has also received a 216 page study of impact of international policy on the KETs by the Danish Technological Institute which can be found at:

http://ec.europa.eu/enterprise/sectors/ict/files/kets/ket-report_en.pdf

A lot of the study is taken up with valuable international case studies covering Japan, the US etc. It concludes that there are four key areas if Europe is to realise its international potential given the rate of Asian progress:

- create critical mass in knowledge and funding through increased synergy
- increase market focus on R&D projects
- large scale demonstrators and pilot test facilities
- provide post R&D commercialisation support

Some other possible priorities for Horizon 2020 have been mentioned recently by Commission officials in the UK. For example the high speed rail industry - both manufacturing and operations - is seen as a sector where the EC has potential to be globally competitive. In the next year or so many more priorities are likely to become visible and in due course substantial R&D funds will be directed towards these goals through the Horizon 2020 programme.

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