ASME
SETTING THE STANDARD

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In this issue

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EnginEurope Group:
Boosting the competitiveness of Europe's mechanical engineering industry

As part of the European Commission's ongoing Growth and Jobs initiative a new discussion group on mechanical engineering, "EnginEurope", got together for their first meeting earlier this year in Brussels.

The purpose of the new group is to assess the competitive challenges faced by Europe's manufacturing industry and analyse how mechanical engineering can continue to fully exploit and develop its potential. *ASME Europe Info* looked into the motivation for the discussion group and what it hopes to achieve.

Mechanical engineering is not only one of the largest industrial sectors for the EU, it is a world leader with 41% of the world's market. In 2003, Europe produced EUR 360 billion of machines and mechanical equipment. Within Europe, mechanical engineering directly employs 2.4 million people in 23.000 companies (with 20 or more employees). So it is easy to understand why the sector has such an important role to play in safeguarding the future competitiveness of the European Union.

EU mechanical engineering sector under threat

Last October, the Commission's Communication on Industrial Policy, warned that the current strong performance of Europe's

EnginEurope will present a range of proposals and measures in four key areas of concern:

- Better access to international markets
- Protection of intellectual property rights
- Availability of skilled technicians and engineers
- Research and innovation

mechanical engineering sector could come under threat from increased international competition. The communication highlighted that the reductions in Research & Development (R&D) expenditure in both the private and public sectors along with the low investment levels that Europe has experienced, would hinder the growth and competitive advantage of the region. Addressing these competitive pressures is therefore critical if Europe is to achieve the ambitious economic and employment targets that it has set for itself.

As an essential part of the industrial fabric of Europe, mechanical engineering is one of the most important sectors that will facilitate the delivery of the European Commission's objectives in the revised Growth and Jobs initiative. The performance of the mechanical engineering sector is of course strategically linked to other industries. Consequently the sector is expected to fulfil a vital role in the European economy as a supplier of capital equipment goods for sectors such as agriculture, construction, mining, transportation and the process industry. This emphasis on the mechanical engineering sector also serves as a catalyst for technological innovation as the demand for improved equipment performance continually increases.

"We need new ideas and concepts"

Following the EnginEurope's first meeting in Brussels earlier this year, Vice-President Günter Verheugen responsible for enterprise and industry policy said: "*EnginEurope will examine the strengths and weaknesses of Europe's important mechanical engineering industry. We need new ideas and concepts to promote its competitiveness and to maintain the high level of employment in the mechanical industry in the EU.*"

The group brings together representatives from industry, six Member States, trade unions and academics and is chaired by Professor Fritz Klocke, Head of the mechanical engineering department of Aachen Technical University (RWTH).

Their aim is to initiate a dialogue on the many challenges that the sector is faced with. These challenges mainly relate to innovation, intellectual property protection, better access to international markets and ensuring the availability of highly skilled personnel.

For an export orientated market such as mechanical engineering, free access to overseas markets is vital. In the past, the European Commission has made significant progress in opening up the export markets to European engineering exporters via multilateral negotiations at the World Trade Organisation. The focus should now be on further developing trade agreements, particularly with countries such as the US and China, who after joining the WTO in 2002, has become a priority market for European exporters.

The predominance of small and medium sized enterprises (SMEs) within the mechanical engineering sector means that they are often global players in the marketplace. They offer highly specialised and customised products manufactured by small teams of very skilled and specialised staff. In the past these companies have suffered from financing difficulties as risk capital markets have been inadequate for the needs of SMEs so the proposed focus on research and the support of innovation will be welcomed throughout Europe. Furthermore the shortage of skilled engineers and technicians along with the mismatch between the skills demanded by companies and the qualifications of applicants has only highlighted the urgency to address these issues on a European level.

Research and Innovation are key

Research and innovation have been confirmed as key challenges for Europe, not least for Mechanical Engineering, thus they are a major concern for the EnginEurope group. The European Commission has set a target of increasing research investment in the EU from 1.9% of GDP to around 3% by 2010. Worldwide competition to attract research and innovation investment is growing from countries such as the US and Japan, and new competitors have emerged in the form of China, India and Brazil. There are many EU initiatives in place to strengthen innovation in Europe. These include the 7th Framework Programme with the European Research Council, the European Technology Platforms and Joint Technology Initiatives, the Life Long Learning

Programme, the Competitiveness and Innovation Programme, the modernisation agenda for universities, and the nurturing of entrepreneurship. A relatively recent addition to these initiatives is the proposed establishment of the European Institute of Technology (EIT). At the beginning of June the European Commission announced further details on the set up of this new and somewhat controversial institute.

European Institute of Technology

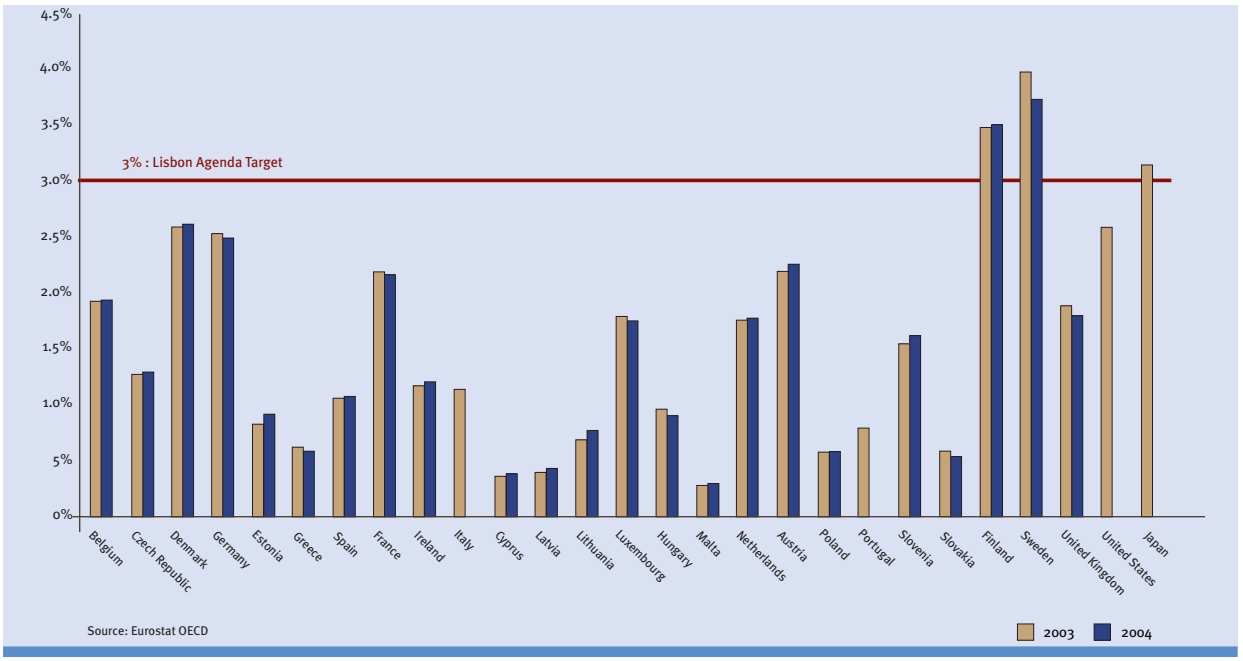
According to the Commission's initial proposal in February, the European Institute of Technology (EIT) would consist of *'knowledge communities'*, which would bring together departments of universities, companies and research institutes to perform research, education and innovation activities in inter-disciplinary strategic areas. However, higher education stakeholders across Europe argued that the operational structure initially proposed will lead to "institutional and intellectual fragmentation of Europe's universities". In response, the communication in June has attempted to address these concerns by changing the staffing arrangements of the *'knowledge communities'* that will be created.

Overall the EIT could offer participating partners significant benefits including increased visibility, increased R&D capacity, better financial incentives and reduced costs of risk-taking. President of the European Commission, José-Manuel Barroso said: "*The EIT is part of the Commission's strategy to create a thriving and dynamic environment for research, education and innovation. We need a close connection between all these three areas of the knowledge triangle. The EIT will be more than simply an operator in education, research and innovation; it will be a reference model for excellence at the European level. He added: I would like to see the Institute become a European symbol for our renewed effort towards creating a competitive knowledge society, delivering more and better jobs and prosperity*".

Influencing the future of mechanical engineering in Europe

Undoubtedly the EnginEurope group has an interesting role to play in influencing the future of the EU mechanical engineering sector. Throughout the remainder of 2006 the group will analyse the industry, anticipating how the EU could address the challenges faced as early as possible and assessing the conditions that mechanical engineering will face in 10 years from today. Ultimately their plan is to present a range of proposals and measures in the key areas of concern – market access, intellectual property rights, availability of skilled technicians and engineers, research and innovation and perhaps more importantly, the definition of Europe's future strategic and technological base. The group will present their report to the Commission early 2007 and *ASME Europe Info* will keep you up-to-date with developments.

R&D expenditure as % of GDP



Stand out from the crowd
with a little help from EMCI™

In the April issue of *ASME Europe Info* we reported briefly on the new certification programme, Engineering Management Certification International EMCI™. In this issue we take a closer look at EMCI™ and the launch this summer of the Guide to the Engineering Management Certification Body of Knowledge, EMC-BOK™.

Aside from the obvious technical skills, today's engineers also need to be fully equipped with the personal and professional skills to enable them to be effective managers. Engineering management has evolved as a '*discipline*' that is essential to both the success of the business enterprise and an individual's career. Giving engineers the opportunity to develop the talents they need to become good managers was the motivation for EMCI™ programme.

Meeting the needs of engineers

In order to meet the needs of both industry and engineers, the Engineering Management Certification International (EMCI™) was introduced last year. ASME, in partnership with three other major American engineering societies, American Society of Civil Engineers, American Society of Chemical Engineers and American Institute of Mining Metallurgical and Petroleum Engineers, established the EMCI™. The aim is to provide global standards and best practices for engineering managers, thereby offering a clear competitive advantage in the marketplace.

The programme is based on a uniform, globally administered examination that evaluates engineers' knowledge and skills in planning, organising, allocating resources, directing and controlling technological activities. It tests knowledge skills in 8 subject areas or domains, shown in the table. There are two levels of certification available EMCF™ for early career engineers and the advanced programme EMCP™

For the individual engineer, EMCI™ offers a programme that builds on an existing technological background with best practices in engineering management - facilitating the sometimes difficult transition from engineering to management. Obtaining such a competitive edge in today's demanding job market with a globally recognised qualification can only be of benefit to an engineer's career path. But it is not just the engineer who gains. Companies do not always have a systematic method in place to train their engineers to become managers so the programme allows the quality control of engineering managers across the organisation.

The EMC-BOK™ Guide

To support the certification programme, EMCI™ has just published *A Guide to the Engineering Management Certification Body of Knowledge (EMC - BOK™)* as the authoritative source on the 'Body of Knowledge' for engineering management. *The EMC - BOK™ Guide* provides a focused overview of the entire body of knowledge necessary to pass the examinations. It covers each of the 8 Domains, the 49 Knowledge Areas within and the further defined 170 sub-knowledge areas. The EMC-BOK™ Guide supplements an engineer's current knowledge and presents new information to help with preparation for either exam. *The EMC-BOK™ Guide* is also an indispensable tool that can be used as a day to day reference guide in performing engineering management duties.

Needless to say, finding time to fit in study on top of a demanding job is not always that easy and some readers will have been practicing management skills on a daily basis already. But the EMCI™ programme caters for all levels of experience and does not require classroom or online courses for candidates seeking certification; you can study for the exam on your own. Beginning in September of this year, the EMCI examinations can be taken at any time at one of 50 Prometric Centres throughout Europe.

For further information on EMCI™ or the EMC-BOK™ Guide please visit www.engineeringcertification.org or contact the ASME Europe office on +32 2 743 1543.

To order a copy of A Guide to the EMC-BOK visit www.engineeringcertification.org/EMCBOK_Guide_2_cfm

8 Domains of EMC-BOK ™:

- Market Research, Technology Updates, and Environmental Scanning
- Planning and Adjusting Business Strategies
- Developing Products, Services, and Processes
- Engineering Operations and Change
- Financial Resources and Procurement
- Marketing and Sales
- Leading Individuals and Engineering Project Teams
- Professional Responsibility and Legal Issues

L'Agence de l'Innovation Industrielle (AII)

The government agency promoting French innovation

An interview with the Programme Director of France's Agence de l'Innovation Industrielle (Agency for Industrial Innovation) on how they are encouraging the European energy and environment sectors to remain competitive in the global marketplace.

ASME Info Europe spoke to Bernard Gindroz, an expert in the fields of environment and energy for over 20 years. In December 2005, he joined the Agence de l'Innovation Industrielle (AII) as the programme Director for Energy, Environment and Transport, we talked to him about the Agency and its work.

Supporting national champions

"*The Agence de l'Innovation Industrielle was set up in August 2005 by the French President Jacques Chirac as a result of the so-called Beffa-report*", explained Bernard Gindroz. The main recommendation of the report, drafted at Chirac's request, was the establishment of an Agency that should fund large "national champions" of innovation areas such as nanotechnology, biotechnology and renewable energies.

Throughout 2006 and 2007, France will be investing 1,7 billion euros in the Agency to fund innovative research projects undertaken by its large corporations. The country has a history of investing public money into large technological projects. Airbus, Ariane and the high speed trains TGV have all benefited from public money. "*The Agence de l'Innovation Industrielle is a new public body. Its strategic objective is to boost the French and European economy to achieve 2 ambitious aims: providing highly qualified jobs and enhancing industrial export*", commented Bernard Gindroz, who joined the Agency because he wanted to play a key role in this forward looking governmental project. "As director of the energy, environment and transport programmes my key priority is to place these topics at the centre of the EU competitiveness strategy", he explained. In this context, he is aiming to tackle energy efficiency as well as renewables and to reduce air, noise and water pollution. In addition, alternative fuels such as biofuels and low carbon technologies are also being addressed.

Bernard Gindroz

Missing the mark?

However, the establishment of the Agency is not without its sceptics. Many observers say that these ambitious efforts are missing the mark. Chirac's projects are led by a who's who of French multinationals, while the country's start-ups and small and medium sized enterprises (SMEs) remain deprived of critical funding. "*It is true that we had 2 different reactions when we created the Agency*", admitted Bernard Gindroz. The large industrial companies were enthusiastic about the project, while the SMEs felt discriminated against. "*Communication with the SMEs was important at the very beginning of the programme. We had to make them understand that they are also part of the project.*" SMEs and laboratories do play a crucial role in realising the various programmes. It is true that the projects tend to be submitted by large companies, but SMEs and laboratories are intricately involved as an "*intellectual and innovative resource*" in the preliminary stages. Hence, the final project is the result of a successful cooperation between all the players; the major companies, SMEs and laboratories.

7 innovative projects

In April 2006, the supervisory board of the Agency selected a first batch of 7 public programmes for industrial innovation and French President, Jacques Chirac, presented the selected programmes to the media. They cover various scientific areas, ranging from energy and transport to information and communication technologies.

Three of the projects relate to sustainable energy. "Homes", is a project that

Cereals

aims to provide an innovative solution of energy active control to reduce energy consumption within existing and new buildings by up to 20 percent. "*The increasing demand on oil imports and the consequent dependence on suppliers of traditional energy resources are the main reasons for the need to secure alternative energy supplies*", said Bernard Gindroz. "BioHub", a bio-refinery programme, aims to develop new production outlets for chemicals based on renewable raw materials from agriculture such as grain. And finally, "NeoVal" is a fully automated urban transport system concept. It will use an energy-storage technology allowing the train to recharge itself at every station.

The Agence de l'Innovation Industrielle will also fund "Quaero", a Franco-German rival to the ubiquitous Google search engine, and "TVMSL", a new European standard for delivering high quality television to mobile phones. The 6th project, entitled 'Véhicule hybride diesel' (hybrid diesel vehicle) and led by Peugeot-Citroën SA, has been formally approved in July, as well as the 7th project. Nanosmart aims to develop new nanoelectronic components. The Peugeot-Citroën project aims to create hybrid cars powered by diesel and electricity.

Carried out over 3 to 7 years, the first 5 projects are to cost 600 million euros in total, with PSA Peugeot's hybrid vehicle to be funded separately. About 15 other project proposals are currently under consideration.

How to submit a project?

In the first instance, companies make a presentation of the proposed project. After initial pre-selection, they are entitled to submit the complete project to the Agency's supervisory board, composed of members of the French parliament and government as well as representatives from the industry and various trade unions. The board decides which projects should be funded on the basis of a range of criteria. "*The Agency selects and funds market-orientated, highly innovative and technological projects*", said Bernard Gindroz. "*Additionally, companies need to show us that they have ambitions to market their product or service worldwide and that it will represent significant market share.*"

The Agency aims to have on board SMEs from high technology sectors and large companies that are willing to make an effort beyond the scope of their usual R&D activities.

The final contract is signed with the companies, following authorisation from the European Commission who ensures the project is within the European regulatory framework.

European dimension of the Agency's work

The Agency is particulary open to European cooperation and welcomes other European companies, as long as the leading company in the project will carry out its R&D in France. "*French project leaders are encouraged to carry out pan-European projects to develop innovative products, services and processes*", Bernard Gindroz explained. According to him, the greatest challenges of the 21st century – climate change, water management and alternative energy sources – can only be solved in close European collaboration. "*We have to bring individual and local innovation together in order to enhance EU competitiveness.*" Today, Europe is aware of the need for innovation. "*Even if Northern Europe is slightly ahead in terms of environment and energy, the rest of Europe is as innovative as the 'pioneers'.*"

As the European dimension is an integral part of the Agence de l'Innovation Industrielle, they liaise closely with EUREKA, a pan-European network for market-oriented, industrial R&D.

ASME European Forum

As chair of the steering committee for the ASME European Forum, Gindroz is keen to promote the need and understanding for a global approach to today's problems in terms of energy, environment and competitiveness "Since these topics can no longer be dissociated, the major challenges of economic growth, employment, climate change and alternative energy sources need the involvement of European citizens. The ASME European Forum offers a platform to debate the issues amongst the mechanical engineering community, to motivate them to undertake joint actions and communicate more widely."

ASME European Forum on Sustainable Engineering

Steering committee moves the agenda forward

This first ASME European Forum, has been taking shape at a fast pace over the last few months. With the help of some very committed ASME volunteers from across Europe, the steering committee has been set up and the Forum programme is now in the final stages of development.

The steering committee first met up at the ASME Europe Office in May and includes many highly respected names from the world of engineering as well as representatives from ASME. Together the committee is responsible for the development of the Forum programme that will focus on 3 key areas for engineering – Environment, Energy and Competitiveness. The general workshop topics can be seen below and the final details on the issues to be addressed will be announced soon.

Steering Committee Members

Bernard Gindroz: Chair, Agence de l'Innovation Industrielle, France

Ian Arbon: Engineered Solutions, UK

Fabrizio Micari: Prof Mechanical Engineering Faculty, University of Palermo, Italy

Estathios Peteves: Institute for Energy, DG Joint Research Centre, European Commission

Lars Sjunnesson: Prof Lund University Sweden; E.ON Nordic AB, Sweden

Flavio Franco: Future Technology Projects ALSTOM, UK

Reginald Vachon: Past President ASME; Direct Measurement Inc, US

John Corcoran: Managing Director ASME, US

Jeroen van Liempd: ASME Director of European Operations, Belgium

Take part in the debate

Each day will focus on one of the three central themes, and will begin with a plenary session and keynote speaker setting the scene for the day. This will be followed by a series of four workshops exploring the main priorities for that sector. Central to the workshops will be the regulatory context and objectives. As well as covering the priorities, opportunities and challenges in sustainable engineering, the debate will discuss future policy developments and initiatives to support the sustainable development of the European engineering industry. Each day will conclude with an interactive panel discussion with the workshop chairs summarising the debate and the conclusions from the day's proceedings.

Involvement in the ASME European Forum offers a high quality platform for the exchange of ideas, the development and the implementation of successful sustainable engineering solutions.

Further information will be available on the Forum website soon where you can register for our Forum Update Service. www.asme.org/europeanforum

Environment			**Day 1**
	AM	Workshop 1	Greenhouse Gas Emissions
	PM	Workshop 2	Reduction of Air Pollutants
	AM	Workshop 3	Effective Waste Management
	PM	Workshop 4	Water Management
Energy			**Day 2**
	AM	Workshop 1	Life Cycle Assessment of Energy Sources
	PM	Workshop 2	Energy Hierarchy Conservation and Efficiency
	AM	Workshop 3	Security of Energy Supply
	PM	Workshop 4	Sustainability of Alternative Sources
Competitiveness			**Day 3**
	AM	Workshop 1	Triple Bottom Line: Economic, Societal and Environmental Aspects
	PM	Workshop 2	Opportunities for Engineering in the 7th Framework Programme
	AM	Workshop 3	Green Manufacturing
	PM	Workshop 4	Technology Transfer and Implementation

ASME European events diary

All ASME events can be found at: www.asme.org/events

August 2006

5th World Congress of Biomechanics
Conferences, Knowledge and Community
Dates: 29 July-4 August
Location: Munich, Germany
Contact: Burt Dicht – dichtb@asme.org
Tel: +1 212 591-7074
More info: www.wcb2006.org

CANEUS 2006: Micro-Nano-technology (MNT) for Aerospace Applications
Conferences, Institutes
Dates: 27 August-1 September
Location: Toulouse, France
More info: Early bird registration rates available, visit www.asmeconferences.org/CANEUS06

October 2006

ASME is a partner for H2Expo2006
International Conference and Trade Fair
Dates: 25-26 October
Location: Hamburg, Germany
More info: www.nano.asme.org

November 2006

International Mechanical Engineering Congress & Exposition (IMECE)
Conferences, Knowledge and Community
Dates: 5-10 November
Location: Chicago Illinois , United States
More info: www.asmeconferences.org/congress06/

December 2006

Eighth International Congress of Fluid Dynamics & Propulsion
Dates: 14-17 December
Location: Sharm El-Shiekh, Egypt
More info: www.zu.edu.eg

March 2007

ASME European Forum on Sustainable Engineering
Dates: 19-21 March 2007
Location: Brussels, Belgium
More info: www.asme.org/europeanforum

ASME Student Section Turkey holds successful first conference in Istanbul

The ASME Student Section at Yeditepe University in Turkey organised their first International Student Conference earlier this year. The event took place from 26-28 May at the University's campus in Istanbul and was "a real success story" according to its organisers.

ISC Participants

The 3-day conference aimed to bring together mechanical engineering students to improve their presentation skills and to share views and new ideas. "*We really enjoyed organising and taking part in a culturally diverse and friendly environment while having the opportunity to learn from leading experts in their field*", concluded the organisers.

Over the 3 days, 17 speakers presented international perspectives and advancements on key topics in the industry such as: a review of modelling in two-phase flow and heat transfer in engineering systems; numerical prediction of wave impact on floating offshore structures; and experimental investigations on the flow-inducted effects around a heat exchanger. The panel discussion on the last day of the conference focused on the importance of innovation and speakers highlighted the fact that engineering companies need to be creative and visionary in order to be commercially successful.

The ISC also included the Old Guard Oral Presentation Student Competition. The jury, composed of professors of the university, awarded the winning project to Silver-Evans Kyle for *Ion Beam and Thrust Vector Characterisation of A 5-Cm Diameter Ion Thruster Using a Multi-Axis Plasma Profiling System (Mapps)*.

For further information please contact Cihan Yilmaz, Yeditepe University at asme@yeditepe.edu.tr