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Dr. Cynthia McIntyre
Senior Vice President
US Council on Competitiveness

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Global Strategies for Competitiveness



Public Private Partnerships

- › R & D: Europe, Asia, Middle East/Africa, Latin America
- › Manufacturing: Europe

PRACE: Partnership for Advanced Computing in Europe



- A consortium of the 16 leading supercomputing centers in Europe designed to strengthen European science, engineering and supercomputer technologies and thus secure Europe a pioneering role in the global competition
- Populated by European companies that need to stay ahead of their competition - both in offering innovative products and services
- Over the coming two and a half years PRACE will decide how to allocate their funds in order to realize the goal of establishing a globally competitive organization structure for scientific computing in Europe
 - The principle behind this goal is using the equipment and expertise of the PRACE partners, not in competition with each, but rather as a complement to each other
- Industrial usage models:
 - “Buying” CPU hours (On Demand Computing) for production purposes with strong SLA (Service Level Agreements);
 - A collaborative R&D where industrial users are accessing HPC facilities for free with the condition of communicating on the results obtained

PRACE partners



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- France
- Germany
- Netherlands
- Spain
- UK
- Austria
- Finland
- Greece
- Norway
- Poland
- Sweden
- Switzerland
- Cyprus
- Ireland
- Serbia
- Turkey

DEISA: Distributed European Infrastructure for Supercomputing Applications



- A consortium of leading national Supercomputing centers that aims at fostering the pan-European world-leading computational science research
- DEISA is providing access to European tier-1 systems to companies and offers a small part of their computing resources to European projects
- PRACE and DEISA are working together on middleware developments for ecosystem integration

FP7: Seventh Framework Programme



- Knowledge lies at the heart of the European Union's Lisbon Strategy to become the " **most dynamic competitive knowledge-based economy in the world**"
- The ' **knowledge triangle**' - **research, education and innovation** - is a core factor in European efforts to meet the ambitious Lisbon goals. Numerous programs, initiatives and support measures are carried out at EU level in support of knowledge
- FP7 bundles all research-related EU initiatives together under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment; along with a new **Competitiveness and Innovation Framework Programme (CIP)**, Education and Training programs, and Structural and Cohesion Funds for regional convergence and competitiveness. It is also a key pillar for the **European Research Area (ERA)**.
- The broad objectives of FP7 have been grouped into four categories: **Cooperation, Ideas, People and Capacities**. For each type of objective, there is a specific program corresponding to the main areas of EU research policy. All specific programs work together to promote and encourage the creation of European poles of (scientific) excellence

KAUST: King Abdullah University of Science and Technology



- The KAUST/IBM Center for Deep Computing Research project is will deliver both high-performance computing capabilities to the entire range of academic disciplines at KAUST as well as enable advanced research and innovation in the computational sciences and industry
- The partnership between KAUST and IBM is an extraordinary example of collaboration to create a leading supercomputing center of immense capacity.
- "The KAUST/IBM Center for Deep Computing Research will enable researchers at KAUST and its partner institutions to unlock the most challenging and complex systems within *life sciences, energy, environment, industry, manufacturing, and fundamental research.*" - Majid Al-Ghaslan, KAUST's interim chief information officer
- The KAUST Research Park and Innovation Cluster will further link KAUST's faculty and students with private-sector research and economic development
 - The KAUST Research Park and Innovation Cluster will nurture technology businesses by facilitating the development of venture capital during start-up, early product or technology development, and at different growth stages
 - Businesses will have access to campus research centers and facilities

KAUST INDUSTRIAL COLLABORATION PROGRAM



- The KAUST Industrial Collaboration Program (KICP) will work with various partners -- industry, individuals, foundations, private associations, and governments -- who have a strong interest in translating new ideas into economic growth
- In today's global economic environment, companies, governments, and universities must innovate to stay competitive
- As part of its mission to foster advances in science and technology, KAUST has established a special program designed to convert discoveries into practical applications that benefit the people of Saudi Arabia, the region, and the world
- Industrial collaboration is managed at both a central level and at each KAUST Research Center, thereby allowing the University to maximize its opportunities for effective industrial collaboration with partners inside the Kingdom and abroad.

DAWNING at Shanghai Supercomputing Center



- SCC is an "on demand" high performance computing application service provider (HPC-ASP) to scientific research and industrial innovation activities in Shanghai and China. SSC is mainly financed by Shanghai Municipal government and the central government
- Work can be done on DAWNING 4000A China, which contains 2128 AMD Opteron CPUs. The aggregative peak performance is over 10 TeraFlops
- S.S.C. was invested by the Shanghai Municipal Government. The amount of investment was about RMB100 million (about \$15 million)
- Projects include weather forecast, oil exploration, bio-medical, gene research, aviation & aeronautics, automotive manufacturing and design and new material development

CESUP: National Center for Supercomputing, Brazil



- Installation of the National Supercomputing Center approved by the Brazilian National Congress in October of 1991
- It is an open resource to users and researchers who needed high performance computing resources for advanced problems in basic and applied sciences in the most diverse fields.
- This Center is open to the academic and industrial community from all over Brazil
- Services are available to both public or private, teaching, research, industry, commerce, consulting or technical institution, both non-profit and for-profit
- Supported by FINEP (part of the Department of Science and Technology) and operated by Universidade Federal do Rio Grande do Sul
 - FINEP's mission is to promote and finance innovation and scientific and technological research in companies, universities, technological institutes, research centers and other public or private institutions, mobilizing financial resources and tools for integrating economic and social development of the country

Centre for High Performance Computing (CHPC) in Cape Town



- The CHPC is funded by the South African Department of Science and Technology, and managed by the Meraka Institute of the CSIR (Council for Scientific and Industrial Research)
- CHPC is one of three primary pillars of the national cyberinfrastructure intervention supported by the Department of Science and Technology
- CHPC works to
 - advance scientific boundaries by enabling world-class research through promoting and facilitating the use of computational technologies and techniques amongst researchers
 - foster innovations through effective partnerships, particularly those of national and continental strategic importance, and benefiting basic and applied research in the public and private sectors
 - partner with industrial and commercial organizations active in areas dependent on high end computing;
 - engage in national High End Computing (HEC) advocacy and discussions with students; Public and private sectors; Media and society

Europe's Manufacturing Strategic Agenda



Manufacture

- Propose, develop, implement strategy based on research and innovation
- Outcome Sought
 - Accelerate industrial transformation to high added value products, processes, services
 - Securing high-skill employment
 - Capturing a major share of world manufacturing output

Manufacturing



ManuFuture gears up to launching a Public Private Partnership in the manufacturing technology sector (May 18, 2009)

- European technology platform on future manufacturing technologies
- European Factories of the Future Research Association” (EFFRA) –
 - **public private partnership in the area of R&D with the European Commission**
 - **key stakeholders** across Europe, including engineering industry associations and their member companies
 - joins forces of **supplier companies, customer companies** and **research institutes** throughout Europe in an industry led association
 - **industry to work in a closer partnership with the European Commission to define the R&D priorities** and to allocate funding for ensuring that Europe’s manufacturing technologies sector continues to be the world leader
 - **creation of EFFRA is the manufacturers answer to the European Commission’s Recovery Plan,**
 - EC announced a **"Factories of the Future" Public Private Partnership (PPP) initiative, Nov 2008**
 - €1.2 billion for the development of enabling technologies
 - Collaboration of R&D experts on production technologies
 - promote pre-competitive research on these technologies across Europe.

Capital Formation



National Venture Capital Association reports

- 52% of VC surveyed are now investing outside of the country
- Large number are shifting their stage of development investment focus to later stages
- 54% of respondents believe that government may see an increased appetite for venture funding
- First quarter investing decreased 40% in 2009 from 2008
- Only three new funds were launched in the first quarter of this year, compared with ten and 21 in the same period of 2008 and 2007 respectively

US Economic Future



- New Models of Public Private Partnership
- Strengthen Capital Formation in US
- National Strategy
 - Maximize the return on public policy and public investment



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