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Press Release

EuroSys is pleased to announce the release of a White Paper, "Fostering Systems Research in Europe." It notes the outstanding economic effect of high-caliber systems research internationally and the relative weakness of Europe in this respect. To improve the competitiveness of IT industry and academia in Europe, it makes specific, targeted recommendations: five-year research-oriented Masters-PhD programmes, funding of long-term, risky and focused research, doctoral student internships, hiring of PhDs by industry, attractive academic careers, and impact-oriented evaluation criteria.

Examples such as Linux, Xen, Google or Microsoft show the considerable impact of Systems research. However, European impact is disappointing. The factors are numerous and are analysed in detail in the paper. They include: a disconnect between industry and academia, fragmented research groups, under-investment in Systems research, and a need for a culture of excellence in academia.

The White Paper was written by a committee of eminent European scholars in Computer Systems, at the request of EuroSys, the European professional society in Systems. It was published during EuroSys 2006, the first European conference in Computer Systems, in Leuven (Belgium) 18--21 April 2006. Other notable events that also took place there:

- Oliver Heckmann of TU Darmstadt received the Roger Needham Prize 2006, worth 2000€, for his doctoral thesis: "*A System-oriented Approach to Efficiency and Quality of Service for Internet Service Providers.*"
- An "Authoring Workshop" resulted in several submissions by European PhD students to major conferences.

Here are some excerpts from the White Paper: "*The Computer Systems discipline [...] constitutes a central pillar of computer science. Systems research is the scientific study, analysis, modelling and engineering of*

effective software platforms. [...] Europe [...] tends to be overshadowed by research in the US. We find several systemic reasons for this [...]:

- *Overall, Europe under-invests in fundamental research in Systems.*
- *The structure and culture of academic institutions do not consistently foster excellence [...].*
- *In general, European research groups are isolated, and need to network more effectively amongst each other, with their peer groups in the US and other parts of the world, and with the IT industry.*

[Summary of recommendations:]

- (1) *Universities: The top priority is to foster excellence at all levels of education and research. [...] establish "Research Master" programmes feeding into PhD; ease time limits on PhDs; generalise doctoral internships; encourage student exchanges. [...]*
- (2) *Industry: [...] The Systems research community and industry need to [...] better appreciate the other's needs and roles [...]. The European IT industry should offer internships for PhD students and hire more PhDs.*
- (3) *Funding agencies: Funding agencies should support long-term, focused, risky and fundamental research projects. Systems research and infrastructure investment need to be sustained over sufficiently long periods. Funding decisions need to be based primarily on technical criteria [...].*

There is currently a window of opportunity for attracting talented researchers to Europe and to establish Europe as the leading location for high-quality, high-impact Systems research. But to take advantage of this opportunity, the issues we raise need to be addressed now."

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Links:

- White paper: <http://www.eurosys.org/whitepaper-2006/>
- EuroSys, the European Professional Society in Computer Systems and European Chapter of ACM Sigops: <http://www.eurosys.org/>
- EuroSys 2006 Conference: <http://www.cs.kuleuven.ac.be/conference/EuroSys2006/>
- Roger Needham prize: <http://www.eurosys.org/phdprize/>
- This press release: <http://www.eurosys.org/whitepaper-2006/final-pressrelease-en.pdf>