

Executive Summary of the External Evaluation Committee for  
**Macroproyecto Tecnologías para la Universidad de la  
Información y la Computación**

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Discurso pronunciado por el **Prof. Hüseyin Koçak**

Distinguido Doctor Juan Ramón de la Fuente, Rector de la Universidad Nacional Autónoma de México, honorables miembros del Presidium, Directores, Profesores Eméritos, Académicos, señoras y señores:

El día de hoy vengo con gusto a hablar frente a esta selecta audiencia académica en representación de la Comisión Externa de Evaluación del Macroproyecto Tecnologías para la Universidad de la Información y la Computación.

Siento no poder continuar mi exposición en Español, así que ahora me dirigiré a ustedes en inglés.

The June 2005 President's Information Technology Advisory Committee presented to the US President the following principal findings and recommendations:

"Computational science is now indispensable to the solution of complex problems in every sector, from traditional science and engineering domains to such key areas as national security, public health, and economic innovations. Advances in computing and connectivity make it possible to develop computational models and capture and analyze unprecedented amounts of experimental and observational data to address problems previously deemed intractable or beyond imagination. ... Universities and the Federal government's R&D agencies must make coordinated, fundamental, structural changes that affirm the integral role of computational science in addressing the 21st century's most important problems, which are predominantly multidisciplinary, multi-agency, multi-sector, and collaborative."

These findings and recommendations hold equally true for Mexico. With the inauguration of the *Macroproyecto Tecnologías para la Universidad de la Información y la Computación*, UNAM has taken an important step in ensuring Mexico's competitiveness in this critical new frontier.

The Macroproject is divided into several main lines: Computational Science, Information Science and Technology, Technology for Education, Software Development, Diagnostics and Planned Development, and Social Research. These divisions are set up to encourage closer integration where beneficial but not force it when not.

The line of Computational Science has the goal of uniting the three pillars of science: theory, experiment, and computation. Also included in this line are software platform designs and hardware, including a grid of high performance clusters, for research and education.

The line of Information Science and Technology addresses the issues of data mining and data analysis of large data sets. Such sets are constantly being generated in, for example, biology, astronomy, nuclear physics, and the repository for the university digital resources and archives.

The line of Technology for Education is designed to enhance the symbiotic relationship between education and research. Long distance education, classroom of the future, Open University and diagnostics will be the target beneficiaries.

UNAM has many outstanding researchers and educators, located in multiple Institutes and Faculties, who are already actively engaged in manifold aspects of scientific computing and information technology. The Macroproject is poised to play a key role in bringing together efforts of the participants and creating an entity considerably bigger than its constituents. Indeed, with the enthusiastic initial participation of over 150 faculty members, new collaborations are being formed and a sense of belonging to a larger mission is emerging.

The Macroproject is off to a good start. However, due to its large number of participants and an innovative framework, it could face a myriad of, mostly administrative,

challenges. For the continued success of the Macroproject we make the following recommendations:

- *Integration:* The Macroproject strives to institute a new culture of collaboration which creates new challenges. Emphasis on integration across institutional boundaries and academic disciplines should continue. Local integration within certain lines is already visible. Horizontal integration across lines should remain a central goal.
- *Spectrum of Projects:* The Macroproject should support individual projects of various sizes and scopes. Small projects of special merit could be used to respond to new ideas or changing needs as the Macroproject evolves.
- *Project Developments and Evaluations:* There are currently over two dozen individual proposals at various levels of support and development. The technical and financial evaluation of these proposals pose certain administrative challenges. The Macroproject has developed an innovative "farm system" to help develop successful individual proposals by providing scientific, technical, and administrative support. This is in contrast to the usual proposal evaluation result of accept/reject. For the benefit of the Evaluation Committee, a repository of all the individual proposals, supported or in development, with all the formal actions taken should be created.
- *Award System:* The current salary system is heavily performance based. While the metrics for that performance remain the standard ones, it may be difficult to encourage substantial initiatives where any of these measures might suffer, even temporarily. Therefore, a new award system for successful participants should be created befitting the non-standard goals of the Macroproject while avoiding misuse.
- *Dissemination:* There has been an initial successful general meeting of the Macroproject participants on May 8-9, 2006. There should be periodic such meetings to connect the Macroproject participants at large. Also, a public Web site should be established to inform the UNAM community of the exciting opportunities and the progress of the Macroproject.

- *Institutional Support:* The scope of the Macroproject is broad and the number of participants is quite large. Specialized support personnel, space, equipment, etc. should be made available for an efficient and responsive administration of the projects. In particular, the *Facultad de Ciencias* should be provided with sufficient space to host the administrative staff, scientific equipment and the laboratories.
- *Connections to other Macroprojects:* A link to the Macroproject Informatics for Biodiversity and Environment in the area of data mining has already been established. Mutually beneficial such links to other Macroprojects should be explored.
- *Future:* The current areas of emphasis are well-chosen to ensure their success due to local interest and expertise. New connections and areas of emphasis should be explored as the need arises. The Macroproject has a wide scope. It is not narrowly focused, targeting specific short term goals. It should continue to seek long term goals of lasting value and impact, and higher levels of integration among disciplines.

In summary, the mission of the *Macroproyecto Tecnologías para la Universidad de la Información y la Computación* is critical, timely, innovative, and inclusive. It has excellent leadership in Dr. Humberto Carrillo Calvet and the Directors of the specialized lines, as well as a large number of enthusiastic and able participants. Therefore, we recommend that UNAM should continue to support this important Macroproject. The Evaluation Committee members remain committed, not just as evaluators, but also as advisors, to ensure the success of this important undertaking.

Muchas gracias por su amable atención. ▣