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Latin American & Caribbean Collaborative ICT Research Federation

“The LACCIR Virtual Institute”

A. Background

In recent years, national competition for greater shares of the global economy has led governments around the world to think strategically about the economic and social significance of academic research and development. This is highly evident in Latin America and the Caribbean (LAC), where many government organizations are currently reviewing the mission, structure, and funding of their higher-educational systems. Their focus is on developing human capital and advancing technology in order to develop “knowledge economies.”

The power of computing and information technology is critical to economic, educational, and social advancement. Research in this area can expand the capabilities of computing technology to better serve social and economic challenges. Novel approaches in developing Information and Communication Technologies (ICT) can have great impact in a wide range of areas; including education, healthcare, agribusiness, micro-economies, energy, and the environment. This has been acknowledged in the working agenda of the Organization of American States (OAS) as can be seen in the action plans emanated from the science & technology ministers meetings held in Peru (2004) and México (2008).

University scientific and technological research is a critical element for the economic and social development of the region. Latin American higher education institutions must participate as partners in nationally-balanced, socio-economic strategies with governments and industry to increase research capacity and capability. An evident lack of critical mass in most LAC research institutions (which shows in the scarce results at a world-wide level) and the notorious lack of private enterprises involvement in research and development (compared to leading countries in Europe, Asia and the USA), places an urgent call for collaboration and partnership in the region. The LACCIR Virtual Institute is an answer to this call.

B. Goals and Structure of the LACCIR Virtual Institute - A Latin American and Caribbean Collaborative ICT Research Federation

The LACCIR Federation was created in May 2007 with an initial “seed” support from Microsoft Research (MSR), the Inter American Development Bank (IADB) and the Organization of American States (OAS). LACCIR represents a unique type of collaboration effort among research universities, private enterprises, regional organizations and local LAC government agencies. LACCIR is envisioned to provide LAC research universities with a virtual collaborative environment to promote cross-country research, education solutions and technology transfer from Universities to the local economies.
The goals of LACCIR are:

1. Advance the ICT research agenda in Latin America and the Caribbean, increasing research opportunities for faculty and graduate students in a collaborative environment. The Virtual Institute supports creative economic, environmental, and social-oriented technological solutions through research, research-to-application, entrepreneurship, and education.

2. Increase the skills and visibility of the Latin American and Caribbean research community, both within the LAC geography and worldwide. The Virtual Institute organizes, implements, and sponsors academic research events to support collaboration among the Latin American and Caribbean research community by developing the skills, knowledge, and capabilities of its' researchers. It also enhances awareness of collaborative research projects relevant to Latin American and Caribbean regional issues.

3. Offer research resources and collaboration opportunities throughout all of Latin America and the Caribbean. For example, the Virtual Institute provides a variety of communication vehicles including streaming-video, on-line lectures, and other collaborative opportunities. It also is in the process of hosting a database containing localized projects, documents, research, curricula and technical reports in Spanish, Portuguese, and English.

4. Partner with other organizations in the region including science & technology national agencies, NGOs, and various other regional organizations that support the growth of research capability and capacity in the Latin American and Caribbean region.

For organizational purposes, LACCIR has been implemented as a “HUB and SPOKES” structure with Chilean Universities acting as the managing agent for the Hub and various prime quality research Universities in Latin America and the Caribbean acting as the Spokes. The Hub, physically installed in Chile, is in charge of the administration of LACCIR: it is managed as a joint venture by Pontificia Universidad Católica de Chile (PUC-Chile) and Universidad de Chile (U-Chile), through a local Executive Committee that includes members from both Universities and from Microsoft-Chile. Management offices are located within the Department of Computer Science at PUC-Chile.

LACCIR has four different types of institutional members: Stakeholder Institutions, Spoke Universities, Associated Universities, and Partner Institutions. LACCIR is governed by an international Joint Steering Committee (JSC) and an Advisory Board Committee (ABC). The JSC includes representatives from each Stakeholder, and oversees the strategies and activities of LACCIR. The Hub Executive Committee reports to the JSC.
The current STAKEHOLDER institutions of LACCIR are the following: Microsoft Research (MSR), the Inter-American Development Bank (IADB), the Organization of American States (OAS) and the HUB universities. These institutions act as sponsors, provide support/resources (in terms of grants, personnel and infrastructure) and define the long-range strategies and goals for LACCIR. To date, MSR has provided grants in the amount of USD 1,600,000 (additional to software resources) and IDB in the amount of USD 550,000. OAS is evaluating an initial grant of USD 300,000. The HUB universities provide in-kind resources such as physical infrastructure, professors-researchers, administrative staff, educational contents, networks, hardware, software and the like.

The current Spoke universities of LACCIR (which collaborate with in-kind resources) are the following: Instituto Tecnológico de Monterrey and Instituto Politécnico Nacional, México; Universidad de la República, Uruguay; Universidad de Buenos Aires, Argentina; Universidad de Costa Rica, Central America and University of West Indies, The Caribbean. As part of its responsibilities, the Spoke universities participate (together with the JSC) in the Advisory Board Committee (ABC) for the definition, supervision and reporting of LACCIR activities and results. The HUB universities are (and act as) Stakeholders and Spokes for all practical effects. Universities from Colombia and Brazil will be invited to LACCIR as spoke universities, in the near future.

Partner institutions collaborate with LACCIR in different ways such as matching funds for research initiatives financed by LACCIR, joint RFPs, joint conferences and seminars, networking and computing infrastructure, beyond-LAC research collaboration, virtual communities and educational networks among others. Up to date LACCIR has joined with the following partner institutions: National Science Foundation (NSF), the “CLARA” Latin American Internet 2 network (CLARA), the Inter-American Institute for Global Change Research (IAI) and the Sao Paulo state research Foundation FAPESP (Brazil). Local governmental agencies such as Colombia’s COLCIENCIA, Mexico’s CONACYT and Chile’s CONICYT, are active LACCIR collaborators as well.

C. Main Activities of the LACCIR Virtual Institute

Since its conception in 2007 and in collaboration with its partner institutions, LACCIR has been increasingly fostering and performing four main activities in the LAC region: (1) ICT collaborative research projects applied to different areas of social and economic development; (2) ICT research map of the region; (3) Web-based infrastructure for collaboration; and (4) ICT graduate students mobility within the region.

Other future activities are being explored with partner institutions world-wide, such as ICT courses and workshops, research fellowships for graduate students and post-doctoral residents, and joint centers for technology transfer. What follows is a basic description of the four main activities.
1. ICT Collaborative Research Projects for Social and Economic Development

LACCIR distributes seed grants in a yearly-basis by means of Requests for Proposals (RFP) for applied research projects. The goal is to foster collaboration among LAC researchers to pursue innovative ICT solutions applied to different areas of development such as education, health care, earth, energy, environment and climate change.

With the participation of an international and multidisciplinary technical committee, LACCIR selects and distributes seed research grants provided by its stakeholders for solutions in the mentioned areas. Matching funds from local governments, industries and regional organizations are encouraged.

There have been two RFP processes completed up to now, with the involvement of 250 researchers from 50 universities of 16 LAC countries, resulting in ten on-going ICT research projects for an approximate total amount of USD 500,000. A third RFP which will distribute up to USD 300,000 in research grants has just recently closed in September 2009. (For more information: http://www.laccir.org.)

2. LACCIR ICT Research Map of the Region

The goal of this Web-based dynamic tool is to provide a collaborative space where LAC students, researchers and other interested parties can place and find up-to-date information about on-going projects, active researchers, resources, graduate programs, and opportunities for cooperation among academy, industry, government and others to foster applied research, technology transfer and innovation.

In collaboration with other institutions, the LACCIR HUB generates reports, statistics and studies about ICT research, development and innovation in the region, based on information provided by the Spoke and Associated universities such as:

- Information and statistics of the Spoke University graduate and postgraduate ICT & CS programs.
- List and short-bio of ICT & CS researchers and professors list with short-bio.
- List and basic information of ICT & CS current research projects (researchers, abstract, publications, website & contact information)
- ICT & CS publications, technical reports and graduate thesis to be published in a LACCIR repository
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- An updated website for at least five current research projects according to a LACCIR model.
- Various web and data base contents such as: research papers, research URL references, educational materials, country-wide statistics, etc

3.  LACCIR Web-based Virtual Community

The goal is to provide Web-based ICT resources to students and researchers to facilitate communication and partnership across the region by means of collaborative software platforms: virtual research environments, e-learning courses, distributed seminars, video-conferences, and distance graduate thesis defenses, among others. Hardware and software resources, such as Conference XP (CXP), Content Management Systems (CMS, SharePoint), and programming platforms are provided. LACCIR delivers resources to the Spoke Universities to build an in-campus collaboration infrastructure required by the Federation.

Each Spoke University provides a virtual conference room for these activities and develops, maintains, and continually enhances a web presence, contents and a research virtual community localized in the LACCIR portal (http://www.laccir.org).

4.  ICT Students Mobility within the Region

Similarly to the research RFP projects, LACCIR distributes small grants (referred to as SSP, Short Stays Program) to encourage graduate students and faculty exchanges within the region. The goal is to increase collaboration among research groups in the region by means of short visits of graduate (M.Sc. and Ph.D.) students to schools from different countries where research projects and thesis dissertations can be shared.

Six SSP grants have been awarded up to now and an RFP process has recently closed which will distribute up to fifteen new grants of USD 5,000 each. LACCIR seeks collaboration with other institutions to promote graduate students mobility and supports Microsoft Research in its process of awarding research Internships in the Redmond Lab and Doctoral Fellowships in the region.
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D. Outlook of the LACCIR Virtual Institute

The LACCIR Federation is actively seeking partnerships with institutions, organizations, private enterprises and governments within and outside the region to:

- Raise the visibility and importance of academic research in the LAC region, with emphasis in ICT applications and technology transfer for sustainable development.
- Strengthen connections to the worldwide research community.
- Leverage collaboration, research capacity and impact in the development of the region.
- Increase graduate students pipeline and mobility within the region.
- Provide support to other similar organizations around the world.

Up to now, the participation and support of Microsoft Research, the Inter-American Development Bank, the Organization of American States and a group of prestigious LAC universities, together with the sponsorship of local Government Agencies for Science & Technology, has provided the groundwork, motivation, resources and guidelines for the achievement of LACCIR initial activities. However, sustainability and success in the long run heavily depends on the participation of many more researchers, governments and strategic organizations throughout the world.

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