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ISTECS IMPACT ON THE DEVELOPMENT OF SCIENCE AND TECHNOLOGY EDUCATION IN LATIN AMERICA

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ISTEC's impact on the development of science and technology education in Latin America

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Abstract

The aim of this paper is to present an historical compendium of ISTECS activities in the region, highlighting its core ideas and principles, and how these have been successfully applied for the benefit of many higher education institutions. These aim at dynamically improving the quality of quant coveraand access to of education in Latin America. They reflect ISTECS multidisciplinary approach, based on entrepreneurial activities, not only to educate engineers but to produce the next generation of leaders the region needs. Latin America must be placed in the world map of education, innovation, generation of wealth and intellectual property with a strong sense of social responsibility. Due to the nature of ISTECS members and strategic partners, the consortium can leverage and balance the influence of academia, industrial partners and government bodies to make the "Triple Helix" work for the benefit of our peoples in general, across geographical, cultural and social borders.

Keywords: Engineering Education, Quality in Education, Accreditation, Engineering Education Organizations, Library Networks, Knowledge Communities.

Resumen

El objetivo de este artículo es presentar una descripción histórica de las actividades del ISTECS en la región, haciendo hincapié en sus ideas y principios fundamentales, y describir cómo éstos han sido aplicados con éxito en beneficio de muchas instituciones de educación superior. Éstas tienen el objetivo de mejorar dinámicamente la calidad y cantidad de la cobertura y acceso a la educación en América Latina. Reflejan el enfoque multidisciplinario del ISTECS, basado en actividades emprendedoras, no sólo para educar ingenieros pero también para producir la siguiente generación de líderes que la región requiere. América Latina debe de estar en el mapa mundial de educación, innovación, generación de riqueza y propiedad intelectual con un fuerte compromiso de responsabilidad social, Dada la naturaleza de los miembros de ISTECS y sus alianzas estratégicas, el Consorcio puede ser la palanca para lograr el balance entre la academia, los gobiernos y la industria para hacer que la "Triple Hélice" trabaje en beneficio de nuestros pueblos en general, traspasando fronteras geográficas, culturales y sociales.

Palabras Clave: Educación en Ingeniería, Calidad en la Educación, Acreditación, Organizaciones de Educación en Ingeniería, Redes de Bibliotecas, Comunidades del Conocimiento.

1. Introduction

In an effort to improve international collaborations in Science and Technology (S&T) in the 1990s, personnel from the University of New Mexico (UNM) began a series of visits to countries in Latin America. Funded by Motorola and other industrial players, a joint industry-academia research project was created to identify ways to bridge the technology divide in the region, as well as to define the role that leading industrial actors could play in advancing collaborative networks between the private sector and academic institutions. U.S. based multinationals, such as Motorola, Nortel Networks, Sun Microsystems, Hewlett Packard, Quanser, Xilinx, IBM, Intel, Microsoft, Khoral, and National Instruments, understood the need for greater integration of industry-academia as a vehicle to facilitate their strategic agendas of market penetration in Latin America.

During the summer of 1990, meetings were held with officials from various governments, educational institutions, research facilities, and industrial firms. The objective of the visits was to identify and evaluate opportunities for collaboration, and to define a regional agenda that would position Science and Technology (S&T) as a catalyst for social, cultural, and economic development.

A first organizational meeting was held in December of 1990 at UNM, involving multi-lateral participation from academia, industry, governments, and foundations throughout Ibero-America. These discussions, which resulted in the creation of the Ibero-American Science and Technology Education Consortium (ISTEC), identified a number of obstacles that needed to be addressed, specifically the lack of:

- Current information for planning and developing technology.
- Expertise in the use of information.
- International cooperation in developing the critical mass needed for projects and joint efforts.
- Interaction and trust among universities, industries, governments, and multilateral agencies.
- Access to technology.
- Entrepreneurship platforms to bring technology and intellectual property to the marketplace.

The above difficulties were further aggravated by an identified lack of awareness from stakeholders of the simultaneous existence and interaction of these obstacles, which were impacting the scientific and technological development of Ibero-America. Furthermore, traditional mechanisms for cooperation were deemed insufficient, with the need to create more effective mechanisms for the transfer of technology. As a result of this meeting, ISTEC was created and participating universities, industries, and other organizations became founding members by signing a Memorandum of Understanding (MOU).

The creation of ISTEC occurred in a context during the 1990's marked by the re-orientation of engineering societies toward the development of competencies and outcome driven models in education and accreditation standards. Likewise, the 1990's marked the beginning of an era concerned with globalization and issues of mobility for engineers in the U.S., Europe and Latin America. Thus, the mission and activities of many engineering education societies began to focus on curriculum content and the innovation of instructional delivery systems, including the role of technology. Socio-economic trends in Latin America—especially the shift away from the public sector as the major employer of engineers, and toward greater private sector demand—began to exert pressure and foment changes in engineering education. As noted by (5), “In the 1990s, challenged by the rise of private industry, the presence of foreign investment by

multinational corporations, and international economic competition, engineering educators from different countries began connecting in regional organizations [in Latin America]”.

Against this backdrop, ISTECS officially became a U.S. 501 [c][3] non-profit organization in 1999. It is a consortium of universities and industrial members that meet annually in the General Assembly, has a Board of Directors, and an Executive Office that handles the day-to-day operations. ISTECS is considered a non-for-profit spinoff of UNM. Concerned with the advancement of engineering education via curricular reform, professional development, and R&D, it is also distinct from similar sister organizations with its focus on entrepreneurship and information networks. This distinction is a result of ISTECS’s grass-roots beginnings as an industry-driven initiative, and will be further explained in subsequent sections to this paper. More information regarding ISTECS, its members and projects can be found following <http://www.istec.org>.

2. Vision, Mission, and Strategic Agenda

ISTECS’s vision is to serve as a vehicle to foster socio-economic and educational change and for the creation of resources that will contribute to improving the quality of life in Ibero-America. Its mission is to foster sustainable development by carrying out programs focused on advancing the state of higher education by:

- Promoting the culture of quality.
- Generating and disseminating knowledge and information.
- Establishing cost-effective vehicles for technology transfer.
- Encouraging joint international research and development.
- Fostering an environment for entrepreneurship and collaboration.

This mission is to be accomplished by nurturing a network of collaborators that promotes trust and integration between academia, government, industry and society at large. ISTECS also strives to strengthen social responsibility as a common shared value among its members in the region.

The Consortium’s activities revolve around five key areas of strategic focus, to be discussed in detail in Section 3 below:

- 1) Quality and accreditation in higher education.
- 2) Knowledge creation and transfer through professional development, joint R&D projects, and knowledge networks, establishing “Knowledge Communities”.
- 3) Information exchange.
- 4) Entrepreneurship and innovation, to create more inter-disciplinary S&T curricula, and as a resource conduit for businesses that want to launch or expand their market presence.

In addition to ISTECS’s work toward the integration of academia-industry-government stakeholders through various collaborative projects and alliances, the Consortium also recognizes the growing need for another level of integration that requires interdisciplinary collaboration and paradigmatic shifts in S&T curricula and learning models. This point addresses the growing trend in engineering education of research focusing on the importance of interdisciplinary and epistemological/cognitive flexibility in the formation of engineers. As stated by the National Science Foundation, “discovery increasingly requires the expertise of individuals with different perspectives—from different disciplines and often from different nations— working together to accommodate the extraordinary complexity of today’s science and engineering challenges” (1). As a result, the Consortium carefully selects and funds activities that advance inter-discipline, entrepreneurship, and innovative approaches to curriculum design and delivery.

3. How ISTEAC is Benefitting Engineering Education in Ibero-America: Present Obstacles and How they are Being Met

3.1 Quality and Accreditation in Higher Education

Since 2003, ISTEAC has been involved in the research and development of tools in the area of accreditation, resulting in the ISTEAC-GRANA™ self-evaluation service, offering a certificate of quality at both the degree program and institutional levels. ISTEAC-GRANA™ has developed a set of criteria that homologates accreditation standards from various international systems (USA, Canada, Japan, EU), and includes training modules and document repositories that are 100% on-line. In addition, the certification provides a site visit of peer reviewers that are not only top-rated in their discipline, but also have a substantial exposure in the area of internationalization (6).

The vision of ISTEAC-GRANA™ is to align quality standards in Ibero-America and first-world countries in the areas of education and technological development, by creating learning communities and generating research paradigms focused on solving problems common to the region. As noted in (7):

“The GRANA-ISTEAC™ model serves as facilitator of the evaluation of the quality of academic programs for America. Its main functions are: (a) to review the levels of quality of educational programs for continuous improvement, (b) to raise the academic level of competitiveness of higher education institutions, (c) to promote academic research networks and the development of science and technology, (d) to develop quality evaluators able to apply the quality standards established by the model, and (e) to create learning communities that focus on the quality and future of education.”

Through a strategic alliance with a provider of standardized content in an innovative delivery platform, ISTEAC-GRANA™ hopes to encourage the creation of a compatible educational model in Latin America in the future. This compatibility model would offer a “regional quality seal” of sorts, intended to strengthen the competitiveness and international mobility of engineers, while creating networks of knowledge to bridge cultural, ideological, and geographic divides.

In recent years ISTEAC has trained close to 100 evaluators, including OAS personnel, and has assisted in the accreditation process of various institutions in Latin America. A community of trained evaluators has been formally established, who serve as peer reviewers for fellow institutions in the region. These resources currently span the geographic areas of Mexico, Central America, Ecuador, Colombia, and Argentina. A key challenge to engineering education advocates in Latin America has been “to figure out how to rethink the competencies of engineers when a single regional identity has not yet coalesced” (5). Due to the cross-cultural and socio-political diversity of the region, the ISTEAC-GRANA™ approach has been to develop standards with a strong international component, with the flexibility of integrating the specific local variables inherent to each country. In this regard, we expect to work closely with sister organizations, such as IFEES, in advancing existing research and dialogue on global competencies, encouraging an accreditation context that is globally informed and yet locally relevant in the region.

The GRANA indicators cover fundamental ABET standards with respect to educational objectives, student outcomes, curriculum, faculty and facilities. In addition, GRANA emphasizes the contextual (localized) environment of the degree program and institution around issues of social relevance and impact: diversity; environmental awareness and social responsibility; national and international competitiveness of curriculum and graduates; participation of external stakeholders, such as industry and alumni, in the institution's and school's planning process; internationalization of curriculum; perception of degree program from

scientific community, alumni and employers; inclusion of environmental sustainability in curriculum; participation of professors and students in international events.

Similar to ABET's progress report process where weaknesses or areas of improvement are identified, the GRANA certification includes a Continuous Improvement Plan that is submitted by the institution and serves to measure progress in subsequent re-certification.

It is our hope that the ISTECS-GRANA™ community continues to expand and help nurture the existing and emergent quality and internationalization agendas of institutions in Ibero-America. For those institutions in the incipient stages of these processes, or who lack sufficient resources, the Consortium hopes to work with multilateral organizations during 2012 and 2013 to establish a scholarship fund. The objective of the fund is to provide access to resources that are not otherwise available to certain constituents in the region. This fund will support on-line training courses on quality, accreditation, innovation, and globalization, as well as the launching of self-evaluation and strategic planning processes within the recipient institutions.

3.2 Knowledge Communities and Information Networks: Knowledge Creation and Transfer Through Professional Development, Joint R&D Projects, and Information Exchange

The birth of ISTECS, as well as its activities and accomplishments throughout the last 22 years, is the result of a collaborative network, a community of knowledge and practice. A community of practice is defined by Wenger, McDermott, and Snyder (8) as, “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.” These communities may have formal structures, or may operate in a relatively informal context. ISTECS is the result of an industry-academia think tank and grassroots approach to problems, which aims to prepare academic institutions in the process of finding solutions to regional challenges. The organization has operated with a fairly informal set of relationships and communities, and has used the concept of Initiatives to formally ground its projects and programs.

ISTECS members are encouraged to participate in the free flow of information for the pursuit of technical excellence. By coordinating willing personnel and resources from diverse geographical locations, ISTECS has developed a series of member-driven Initiatives: organized efforts that create activities to address specific areas of research, social, pedagogical, informational, and technological impact. Within each Initiative, projects are identified, planned, and implemented among members of the ISTECS network. Because they respond to the needs of the members and their communities, projects are dynamic and expandable, encouraging the creation of collaborative and highly coordinated networks that maximize the utilization of available resources.

ISTECS could be visualized as a network of networks –its organizational structure is a high level network of approximately 80 academic and industrial members, who share a common set of concerns and aspirations concerning S&T education and research. Embedded within ISTECS, there are a series of “Subject Matter Networks” that are hosted by the Initiatives and led by a management team consisting of Initiative Directors. The ISTECS Board of Directors, its President and Initiative Directors, are responsible for developing a set of guiding principles, ethical standards, and strategic plans. The projects or “Subject Matter Networks” are, however, envisioned as self-sustaining, member-driven communities. As such, leadership is distributed among the members, all of who have voting representation at ISTECS’s annual General Assembly. “Subject Matter Networks” and their respective leaders are shown below:

- Red Ibero-Americana de Sistemas de Telemando y Control Distribuido – RITCoD, Dr. Diego Martínez – Universidad Autónoma de Occidente – Cali, Colombia.

- Ibero-American Nanotechnology Centers Network (IBANCN), Dr. Wilfrido Moreno – University of South Florida, Tampa, Florida.
- Ibero-American Trans-disciplinary Network in Complex Systems, Dr. Fernando Cruz, Universidad del Bosque, Bogotá – Colombia.
- Ibero-American Embedded System Network – “A Knowledge Community”, Dr. Ferney Amaya, Universidad Pontificia Bolivariana, Medellín, Colombia.

ISTEC Initiatives are comprised of:

3.2.1. *Library Linkages (LibLink)*

One of the basic tenets of science and technology is access to up-to-date information in real time. This Initiative aims to modernize document delivery to complement education, research, manufacturing and policy design. Additionally, the initiative proposes to broaden electronic availability of research materials, to upgrade the information skills of the library staff and to sharpen the skills and independence of the electronic user. This is a network of over 60 academic members that share their heritage and documents in a reciprocal exchange model with a commitment to Open Access. Under this arrangement, which requires the common use of the Celsius software platform, thousands of documents are exchanged through the network each year at no cost to ISTEC members.

Although LibLink began—and continues to be—as a free-of-charge document exchange initiative among members, in the last couple of years its strategic goals have been related with wider proposals for university libraries to adapt to technological changes in the areas of learning and research. Among these changes, we can see the web as a new platform for communication of information. This concept is applied not only to humans but also to machines, and it is enhancing networking and collaboration. Moreover, this new way of working is creating a modern concept of information unit, modeled not only by the need to represent several publication formats in new scientific practices (text, data, simulations, etc.), but also by changes in the nature of authoring tools and environments used.

Finally, users are not only consuming information, but they also increasingly want to participate in its production (e.g. blogs, wikis, YouTube, slideshare, etc.). These changes, together with worldwide movements like Open Access, have many implications on the environment of academic libraries: the importance of e-learning, the new model of scientific communication and publishing, the idea of “institutional visibility” as a special university concern. The aforementioned implications point to some guidelines to implement a technology strategy for libraries in the light of these changes: a new concept of information unit, interoperability, flexibility, open architecture and tools for searching, retrieving and preserving the information that involves multidisciplinary and globally agreed upon efforts.

An International Digital Library Symposium will be held in Barranquilla, Colombia, on November 13-16, 2012, with the objective of strengthening the collaboration between Consortium members, BIREDIAL.org (Colombia), and CIPECC’12 (Ibero-America). The conference theme is “*Open Access, Scientific Communication, and Digital Preservation.*” This joint effort will not only offer a conference and a discussion forum, it will also create a community of practice dedicated to identifying future areas of collaboration to advance library science and S&T communication in the region.

3.2.2 *Advanced Continuing Education Initiative (ACE)*

The key to the development of any nation is the availability of highly qualified human resources. This initiative seeks to upgrade the available skills and increase the number of qualified individuals in applicable areas. Projects conducted within this initiative involve the adaptation, design and enhancement of curricula, professional development, accreditation, on-

site training and web-based distance learning. Of particular interest is the development of materials that incorporate the latest technology in state-of-the-art textbooks, online resources, distance learning programs, and laboratory materials.

The initiative utilizes non-traditional faculty, staff, and student exchanges, including graduate interuniversity degrees. The interuniversity degree program, developed in conjunction with the University of New Mexico, allows students to receive graduate credit from accredited programs at other institutions, and upon completion of the degree, receive diplomas from each university. The primary purpose of the interuniversity degree program is to promote the creation, and improve the quality of graduate programs in Ibero-America, as well as to offer students access to education and credentials otherwise not available in their countries.

The ACE initiative also seeks to employ the most current technology to develop superior systems for the educational process. By hosting a regional workshop at Universidad Nacional de La Plata (UNLP), Argentina, in March 2012, ISTECE officially joined the Opencast Matterhorn community. The ISTECE-Media project is aimed at fostering the use of multimedia for teaching and learning science & technology in Spanish and Portuguese speaking countries. As a part of this project, ISTECE-Media will deploy a central repository where the institutions can archive their produced media or federate their own repository. The ISTECE-Media working group also examined ways to coordinate the co-production of multimedia learning objects, the first of which will focus on “leveling courses” —courses that help students switch from High School to Higher Education. These objects could be recorded lectures or small “learning pills” focused on one topic. Another technical issue to address will be the local mirroring of media on campus. Institutions leading the project are: UNLP, Argentina and Universidad de Vigo, Spain. Active contributors to the project include: Universidad de La República, Uruguay; University of New Mexico, USA; and Universidad Internacional del Ecuador.

ISTECE has begun to participate in the IFEEES Spanish webinar series; one-hour webinars intended to bring reflection to topics of interest in engineering education among our members in the region. As a further development in the near future, we expect to launch the Latin America Virtual Academy, a joint ISTECE-IFEEES/ASEE project that builds on a successful on-line education program used between the USA and India, called the Indo-US Collaborative for Engineering Education (IUCEE). “The IUCEE program was conceptualized by over 150 leaders of engineering education and businesses from US and India in 2007 to help create good quality engineering talent in order to find solutions to the global challenges facing humanity such as energy, environment, health and communications” (2). ISTECE will build on this model, sharing resources and best practices from this Indo-US initiative in the context of the Ibero-American region.

3.2.3 Research and Development (R&D)

The introduction of state-of-the-art infrastructure in educational institutions is pivotal for the social, cultural and economic development of nations. This initiative was created to provide a vehicle to perform research and development in a variety of disciplines. The laboratory facilities are utilized for teaching and research and to enhance interaction between industries and universities in order to foster innovation, creativity and collaboration. Therefore, this initiative improves the ability of the latest technology to be applied to the solution of problems in a variety of areas and encourages the development of solutions that have regional and local social and economic impact.

The establishment of teaching and research labs and the training of an impressive number of engineers is an example of the successful industry-academia partnerships that ISTECE brokers. In almost 22 years of collaboration with industry, over 200 scientists and engineers have been trained in the areas of Digital and Image Signal Processing, Embedded Systems, Rapid System Prototyping, Nanotechnology, and Instrumentation & Control. Over 500 software laboratories have been implemented using KHOROS. Presently, ISTECE continues to work actively with

companies such as Xilinx, Quanser, Nanoprofessor and National Instruments to obtain donations in-kind that facilitate training events in collaboration with hosting member institutions in Latin America. In 2012, four weeklong workshops are being offered in the area of Digital Signal Processing: Rapid System Prototyping using FPGA's Applications, in which members of academia and industry participate, and the hosting institution gets to keep up to 20 donated ATLYS™ XILINX development stations and their respective instructional materials to be used for teaching and research purposes.

Another example of successful industry-academia partnerships is the Professional Development Series (SDP), whereby ISTECS assisted in the creation two Academic Training Centers in the Universidad Técnica Particular de Loja (UTPL), Ecuador, and the Pontificia Universidad Javeriana – Cali (PUJ), Colombia. These centers received a donation of Spartan-3E XILINX development boards to create or update laboratories based on FPGAs. The objective of these centers is to build capacity in the region, so that Academic Training Workshops for constituents in the region can be offered.

UTPL hopes that the training provided through their center will open the opportunity for them to give back to their community through the development of innovative technological applications and the efficient management of collaborative networks. For PUJ this center will be an opportunity to train local engineers in the use of emerging technologies, the adoption of which will promote the growth of industry in Colombia. It will also assist in the synchronization of efforts made by research groups throughout the region based on the development of effective communication networks.

3.2.4 Science and Technology Entrepreneurships for Economic Development, (STEED)

This effort is a spinoff of the original Initiative called “Los Libertadores”, a values-driven project that creates a common thread that links all the goals and objectives of ISTECS. Los Libertadores proposes to share worldwide expertise, facilitate distributed problem solving and create the critical mass needed for the development of regional projects. STEED seeks to create a flexible network of electronic services (*e-services*) and applications for education, information exchange, R&D and entrepreneurship, as well as to provide ICTs for social, cultural, political and economic development. These services are connected through a hemispheric web-based backbone on which ISTECS has worked very closely with the Internet-2 community in raising the awareness levels in the Region. The created network is known as CLARA.

The STEED Initiative fosters technology transfer and the development of social and business entrepreneurs through the implementation of “Centers of Excellence” —unique clusters of businesses and institutions, such as technology parks, that share common interests in health care, micro and nanotechnology, biotechnology, energy and other complex areas such as those identified in the US National Engineering Grand Challenges (3).

One example is the Center of Excellence at the Universidad de Monterrey, in Mexico. This center focuses on on-line student, staff and faculty services, from access to library content to on-line courses, enrollment management, payments, early warning systems and other services. Another example is the supercomputing center, jointly with Cray Research, at the Universidad Autónoma de Mexico. A third example is the creation of CEITEC in Porto Alegre, Brazil. This center focuses in nano/microelectronic design and device fabrication. It is the result of a joint venture between the Federal government of Brazil and Motorola, facilitated by ISTECS.

3.2.4.1 Entrepreneurship and Innovation

One of the primary goals of STEED is to create a Network of Entrepreneurial Programs in Academia, Industry, Research and Development Centers, Investment Bankers, Multilateral Organizations, and Individuals for the identification of innovative ideas, services, applications, prototypes, and products; and brokering strategic alliances with investors, industry and government agencies to bring these innovations into the marketplace. An example of these

efforts is the 2005 Entrepreneurship Forum hosted at the Universidade Estadual de Campinas, Brazil (UNICAMP). Corporación Andina de Fomento and the Anderson School of Management at the University of New Mexico cosponsored the event. The forum brought 20 teams of startups from the Ibero-American Region to present their Business Plan (BPLAN) in front of Venture Capital organizations from the US and Brazil. The top 3 winners were later invited to present their BPLAN in New York City.

In collaboration with sister engineering education organizations, SPEED and IFEES, ISTECS reformulated its annual student contest. As a result, the 2012 “1st Global Student Design Challenge (GSDC)” was launched at the IFEES General Assembly in Lisbon, in September 2011. The goal of the GSDC is to present undergraduate engineering students with industry-sponsored challenges that foster entrepreneurship, the formation of new leaders, and transnational collaboration, in accordance to the values espoused by the Peace Engineering Movement. These challenges encourage student teams to come up with an idea and take it full circle from the laboratory to its commercialization. Projects must be sustainable and exhibit social, cultural, and environmental responsibility. We encourage entrepreneurial approaches and inter/transdiscipline collaboration across cultural, ethnic, religious, gender, and geographical borders!

A group of students from the Electrical and Computer Engineering Department (ECE) at the University of New Mexico (UNM) participated in the GSDC challenge as a senior design project. These students also participated in the UNM Technology Business Plan Competition, winning the second place and \$10,000.00 US Dollars. They are now in the process of incubating a company and raising capital. Clearly, this result demonstrates the validity of the GSDC. We invite industry, government agencies, NGOs, philanthropic organizations, foundations, engineering education organizations, and academia to sponsor these challenges and work closely with the student groups for the completion of the projects.

4. Conclusion

As outlined in the sections above, ISTECS is committed to bettering science and technology education in Ibero-America, based on a collaborative network of networks, and in establishing solid partnerships between academia, industry, governments and sister organizations pursuing the same goals. In these sections, a brief description of the Consortium’s current and future activities was presented, but due to space limitations some in-depth information is missing. ISTECS scope is not limited to science and technology education; it encompasses all areas of human knowledge, from the hard sciences to the social sciences, from academia to industry to the social sector at large. It strives to bring science and technology to all, to teach communities how they can benefit from the use of modern day technology to perform the tasks that are customary or essential to their progress and well being. For instance, ICTSD (Information Communication Technologies for Social Development) is an ISTECS program aimed at using technology to generate and support collaborative activities among academia, industry, government, and marginalized communities in the Ibero-American region. ICTSD has produced a very successful joint effort with La Plazita Institute (4) to engage New Mexico’s youth, elders and communities to draw from their own roots and histories to express core traditional values of respect, honor, love, and family. ISTECS Salud is another important example, in that it aims to bring health services to the least privileged regions of Latin America, providing them with information, remote imaging and diagnosis, consulting and recommendations. This program has also brought medical attention and treatment to peoples in the Amazon basin using boats especially designed for this purpose.

Clearly, ISTECS’s activities are based on the concourse of many actors —academia, governments, industry, sister organizations, society as a whole— to be able to continue working on its main goal of bringing wellbeing and prosperity to the region. After 22 years of existence, we can say that what has been done is very relevant, but more importantly, there is much that

needs to be done, and every day there are more ways in which we all can contribute to make Latin America a more prosperous region.

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