

International Telecommunication Union

Report of the 2009
ITU-T Kaleidoscope
Academic Conference

**Innovations
for Digital Inclusion**
Mar del Plata, 31 August – 1 September 2009

Supporters:



NOKIA



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Organizer:



Report of the Second ITU-T Kaleidoscope Academic Conference
“Innovations for Digital Inclusion”
Mar del Plata, Argentina, 31 August - 1 September 2009

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Executive summary

The second ITU-T Kaleidoscope event (<http://itu-kaleidoscope.org/2009>) themed on “Innovations for Digital Inclusion” took place in Mar del Plata, Argentina, on 31 August - 1 September 2009. This academic conference continued and expanded in Latin-America the success of the first Kaleidoscope event “[Innovations in NGN](#)”, which was held in Geneva, 12-13 May 2008, as follow up of a [Consultation meeting](#) on cooperation between ITU-T and Universities held in Geneva, 18-19 January 2007.

Organized by ITU with the technical co-sponsorship of the IEEE Communications Society, “*Innovations for Digital Inclusion*” was held at the kind invitation of Argentina, with the support of Cisco Systems and Nokia. The conference brought together the best academic minds from 24 nations around the world to present their future visions to achieve digital inclusion. The conference also included an exhibition with six South American universities, which provided insight into their activities and encouraged exchange of ideas and new contacts amongst the participants.

Kaleidoscope 2009, that required a 13-month preparation effort led by the general chair, Mr Yoichi Maeda (NTT, Japan), was extremely successful bringing together over 110 participants of 24 countries, which included, beyond the regular ITU attendance (the event piggybacked with an NGN-GSI event), students and professors from 30 academic organizations. They actively participated, networked and interacted for the presentation of 20 lecture papers and 12 poster session papers, which were selected from the 83 original paper proposals using a rigorous double-blind, peer-revision process that involved 113 subject matter expert reviewers.

At the event, Richard Stallman, founder of the GNU Linux project and now President of the Free Software Foundation, presented an invited paper “[Is digital inclusion a good thing? How can we make sure it is?](#)” that set the tone of the conference stimulating interesting discussions. Projects for digital inclusion must take special care that the computing they promote is the freedom-respecting kind. Although everybody agreed on the principle, various opinion were expressed by participants on the issues the proposed solution (using free/libre software) could arise, especially when the current business models were analysed. Surely, activities directed at “including” more people in the use of digital technology must take into account people human rights at a planning stage.

As per the first Kaleidoscope event, three factors have helped raising the profile of this conference as a high quality one from the academic perspective:

- The rather strict acceptance ratio just below 25% for the lecture papers and below 40% for the sum of lecture and poster papers.
- The availability of the proceedings through [IEEE’s Xplore repository](#).
- Publication of the best conference papers in the Kaleidoscope special edition of the IEEE Communications Magazine. For the Kaleidoscope 2008 this is found in [IEEE Communication Magazine Vol.47 Issue 5, May 2009](#), pp. 80-113, and another special issue is being organized for this year’s Kaleidoscope.

The initiative has been very well received by both academia and ITU members. Participation statistics show that the target public (academia and R&D) was well represented.

Concerning increasing in cooperation with universities, the many academics in attendance expressed the importance of the role of universities in the standardization process and the high value of strong collaboration between ITU, academia, and research institutes.

- Cooperation with academia needs to be reinforced, in particular to encourage the participation and involvement of **experts from the academic communities** in the development of standards.

The kaleidoscope is a useful tool to enhance awareness in the academic community on the ongoing standardization work of ITU and the role that academics can play within it.

- ITU should try to find a way for universities to join or participate by means which they can afford. In this respect, Malcolm Johnson, Director of the Telecommunication Standardization Bureau, highlighted [Resolution 71](#), recently approved at the World Telecommunication Standardization Assembly 2008, which invites the ITU Council to consider the admission of academic institutions, universities and associated research establishments to ITU-T at reduced cost. His proposal to the ITU Council to be held in October 2009 for a reduced fee of \$2000 was welcomed by participants.

Four best paper awards were granted:

- First prize: *ROFSO: A universal platform for convergence of fiber and free-space optical communication networks*, Kamugisha Kazaura, Kazuhiko Wakamori, Mitsuji Matsumoto (Waseda University, Japan); Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki (Osaka University, Japan)
- Second prize (*ex aequo*): *An ID/Locator Split Architecture of Future Networks*, Ved Kafle, Hideki Otsuki, Masugi Inoue (National Institute of Information and Communications Technology, Japan)
- Second prize (*ex aequo*): *Quality of Service management for ISP: A model and implementation methodology based on ITU-T Rec.802 framework*, Eva Ibarrola (University of the Basque Country, Spain); Jin Xiao (University of Waterloo, Canada); Fidel Liberal, Armando Ferro (University of the Basque Country, Spain)
- Second prize (*ex aequo*): *Discrimination in NGN service markets: Opportunity or barrier to digital inclusion?*, Fernando Beltran (University of Auckland, New Zealand); Lina Gomez (Centro de Investigacion de las Telecomunicaciones, Colombia)

The **third Kaleidoscope academic conference** should attract more participants, leveraging on the success of both first and second events. The theme is currently under discussion as well as the venue which could be in Asia or Africa, depending on country invitations, in the middle of December 2010. Information will be available at <http://itu-kaleidoscope.org/2010>.

Second ITU-T Kaleidoscope Academic Conference “Innovations for Digital Inclusion” – Event Report –

1 Introduction

The second ITU-T Kaleidoscope event was an academic conference themed on “Innovations for Digital Inclusion” that took place in Mar del Plata, Argentina, on 31 August – 1 September 2009, at the kind invitation of the Argentinean Ministry of Federal Planning, Public Investment and Services and hosted by the National Communications Commission and the Secretariat of Communications of Argentina. The final conference programme can be seen in [Annex A](#). This event continued and expanded in Latin America the success of the first Kaleidoscope event “[Innovations in NGN](#)”, which was held in Geneva, 12-13 May 2008. See [Annex B](#) for a short comparison of Kaleidoscope 2008 and 2009 numbers.

2 Conference objectives

The objectives of the Kaleidoscope 2009 were:

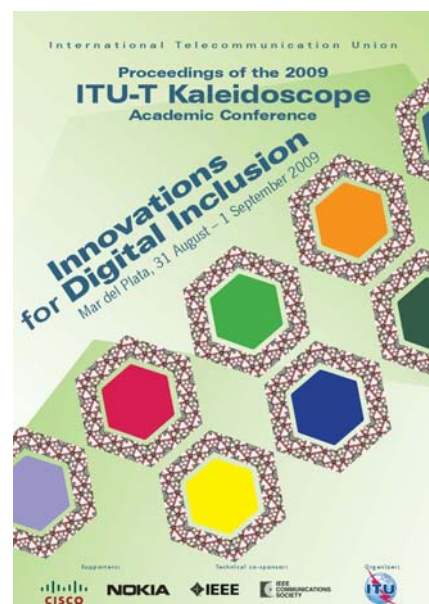
- Increase the dialogue between academia and experts working on the standardization of ICTs
- Identify visionary ideas on future Information and Communication Technologies (ICTs) which can eventually lead to new topics for standardization
- Highlight how innovative technologies (five years and beyond) will promote Digital Inclusion and help bring the benefits of ICTs to all segments of the population, in particular those in underserved communities and developing countries. The event seeks to promote research that supports innovation in ICTs toward universal, sustainable, ubiquitous and affordable access by all, leading to the ubiquitous network society in which information can be accessed anywhere and anytime by anyone and anything.
- Address multidisciplinary aspects, including regulatory and societal challenges as well as analysis of standardization needed

3 Conference organization

- The **Organizing Committee (OC)** was tasked with the general management of the conference. It was chaired by Mr Yoichi Maeda (NTT, Japan) and comprised [14 members](#), assisted by the ITU-T Secretariat (TSB). The OC held regular conference calls, about every six weeks, to review progress and decide open issues.
- The **Programme Committee (PC)** was responsible for the paper selection process (under the supervision of the OC) and comprised [113 technical experts](#). The PC was chaired by Mr Mostafa Hashem Sherif (AT&T, USA) with the assistance of Messrs Helmut Schink (ITU-T, Nokia Siemens, Germany; Track 1), Alfredo Terzoli (Rhodes University, South Africa; Track 2), Kai Jakobs (RWTH Aachen University, Germany; Track 3) and Mitsuji Matsumoto (Waseda University, Japan; Poster session)
- Paper proposals were solicited via **Call for Papers (CfP)**, the first of which was issued on the end of August 2008, where **three tracks** were identified:
 - Track 1 – Architecture evolution to foster digital inclusion
 - Track 2 – Applications and services in the inclusive ubiquitous society
 - Track 3 – Social, economic and policy issues to achieve digital inclusion:

Subsequently, three other versions of the CfP were issued.

- Paper proposals underwent a **double-blind**¹ **peer-review process** of the full length papers. The review and selection process was managed using the [EDAS](#) online conference management tool. A total of 83 paper proposals submissions were received and 113 expert reviewers were enlisted. Every paper proposal received at least **three**² full-paper **reviews**, to a total of more than 250 reviews (some papers received more than three reviews due to the uncertainty that volunteer reviewers would reply within the review deadline). Paper **selection criteria** included a set of review questions that were used to derive a weighted rank that emphasized significance of papers to standards development.
- **Promotion:** the event was promoted using fliers and email invitations. Information was distributed to the ITU-T academia contact database (over 800 individuals and institutions), ITU events such as study group meetings, workshops, seminars, forums, etc, and through regular articles in the ITU-T newslog.
- **Awards and recognitions:** Four best paper awards selected from ten best-paper nominees and eight Young Author Recognition were delivered at the conference (see [§6.2](#) below).
- **Sponsorships and partnerships:** Three levels of sponsorship were defined, Platinum (CHF12'000), Gold (CHF8'000) and Silver (CHF4'000). Cisco Systems was Platinum sponsor while Nokia was Gold Sponsor. Additionally, we had the [technical co-sponsorship](#) from the IEEE Communications Society.
- **Proceedings:** the conference proceedings are freely downloadable from the [ITU bookshop website](#). A distribution agreement was signed with the IEEE for electronic distribution of the papers in the proceedings via the [IEEE Xplore channel](#) (as a derivative of the IEEE ComSoc sponsorship). In addition the three invited papers and the best four awarded papers will also be featured in a future special edition of IEEE Communications Magazine.
- Accepted papers included in the proceedings were classified in **lecture session** papers (the 20 top ranking papers) and **poster session** papers (the 12 top ranking papers from the accepted papers that did not enter into the lecture session³). The lecture sessions were organized as in workshops (one presenter at a time), while at the poster session all presenters did it at the same time from their stations.



4 Participants

The event had 111 attendees coming from 24 countries and about 65 different organizations. Among those, beyond the regular ITU attendance, the event had students and professors from 30 academic organizations.

Table 1 summarizes the general opinion of participants at the event. An online survey form was used by 19 participants to provide their feedback on the event.

¹ Authors did not know the identity of the reviewers assigned to their papers and vice versa.

² The criterion to have a minimum of three reviews per paper is commonly adopted by academic conferences, and in particular for IEEE publications.

³ The conference proceedings contain three invited papers, 20 lecture session papers and 12 poster session papers.

Table 1: Summary of satisfaction survey

Ratings	Responses	
	Count	Percent
No interest	0	0
Little interest	0	0
Neutral	2	10
Interesting	3	16
Very interesting	14	74
Total	19	100

5 Keynote speakers and invited papers

The conference had one keynote speech, one keynote presentation and three invited papers. They were:

- **Keynote speech by Tomonori Aoyama, Keio University, Japan**

In 1969, 40 years ago, two persons predicted the next society after “Industrial Society”. Alain Touraine in France predicted “Post-Industrial Society”, and Yujiro Hayashi in Japan described the advent of “Information Society” after Industrial Society. In that year, two events occurred by chance suggesting the advent of information society, one of which was the first packet transmission experiment over ARPANET between UCLA and SRI. This is the origin of the Internet. The other event was TV broadcast from the moon on which the first mankind landed flying in the Apollo No.11 Spaceship. Today we are celebrating the 40 years anniversary of Information Society as shown in Fig.1.

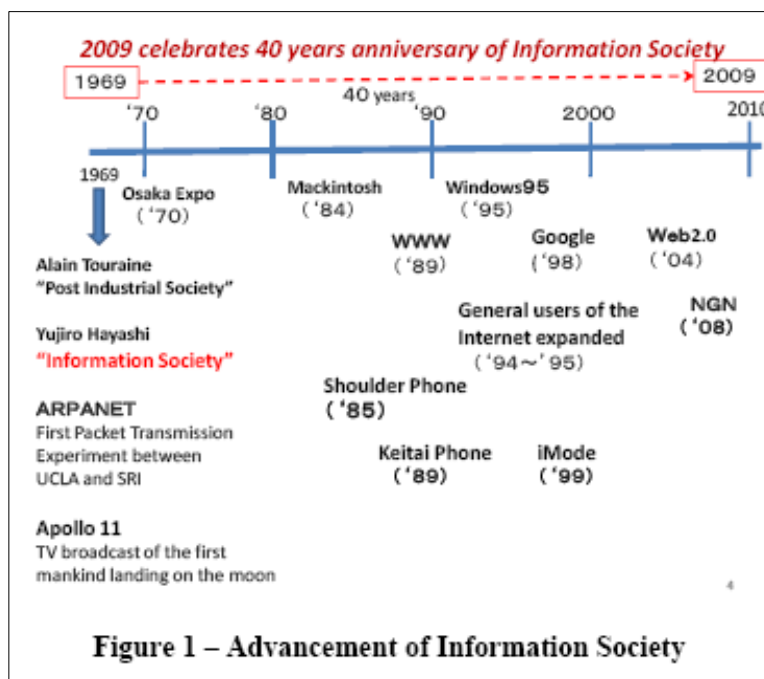


Figure 1 – Advancement of Information Society

During these 40 years, ICT advanced quite rapidly, and especially in these ten years, the advancement of the Internet and cellular phone networks has been remarkable, and the economy and daily life in the today's society are dependent heavily on such ICT infrastructure. In 2010s we are going

to make progress toward “High Level of Information Society” which will appear in 2020s - 2030s.

A new paradigm of both computer systems and communication networks will be envisaged as shown in Fig. 2. In this presentation, requirements for the new ICT paradigm are shown, and technological issues to realize it are discussed.

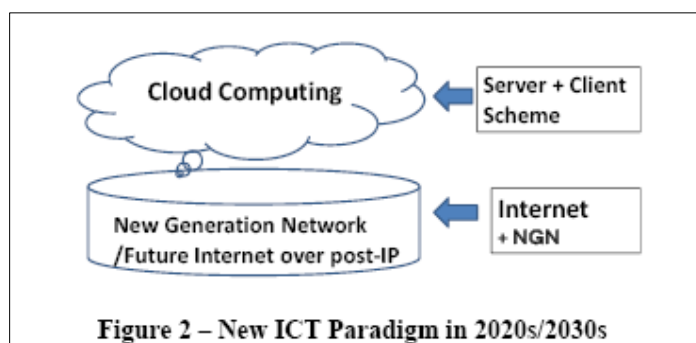


Figure 2 – New ICT Paradigm in 2020s/2030s

- **Keynote presentation “A vision of communications for the next billion” by Sigurd Schuster, Nokia Siemens Networks, Germany and Carlos Uzal, Telefónica Latin America, Argentina**

By the end of 2008, nearly four billion people used telephone and/or Internet services on fixed and mobile networks. We may anticipate that this number will grow to around five billion until 2015, with this growth coming from emerging economies. Although there are some growth expectations in fixed lines, the majority of new connections is expected to be on the mobile side.

Looking at these market projections, the industry has to develop ways to bring connectivity to the new users in a highly cost effective way. At the same time we need to have a closer look at the services: while in many cases, providing voice telephony to first-time telecommunications users is already a big step ahead, “Digital Inclusion” needs to ensure access to the Internet or at least Internet-like data services as well. To implement Digital Inclusion does only not mean to provide a personal computer or a mobile phone with Internet connection - this could be the first challenge and the easiest one. Digital inclusion is much more than that: we are talking about reaching specific groups of users, communities, schools, and little remote villages, and teach them how digital communications, services and technology can bring benefits to their life. In some places these challenges seem still to be far from reality, but we already have seen some successful examples of innovative, Internet driven business models providing free services in emerging markets. Here is a big opportunity for the telecommunications industry. We have the ability to deploy network access, we can team up with partners to provide terminals, content and knowledge to include the “next billion” into the digital life.

On the connectivity side of communication networks, state-of-the-art radio technologies provide the base to cover large areas fast and at affordable cost. Smart site solutions for base stations enable sustained operation in remote locations, in many cases even without connection to the power grid. Tight integration with fixed infrastructure will help to bring backhaul cost down in populated areas. IP based infrastructure and photonics will help to make transport, core networks and basic services available at sufficiently low cost.

On the services and applications layer, the extended use of IT technology and a wealth of dedicated SW applications will help network service providers to serve low ARPU customers, offer cheap voice and suitable data services, and allow for widespread usage of prepaid and innovative payment schemes. It also allows developing innovative business models with new players in the value chain and to even serve users in locations where a traditional telecommunications service economically would not be feasible, or to bring “pre-Internet” services to areas where broadband connectivity is not affordable.

If our industry aims at turning such a vision into reality, this does not come for free. Besides constructive, cooperative work of all parties in standardization, regulation, equipment development, network and service evolution and operation, we need to “go the extra mile”: Full exploitation of our creativity, innovation, and research capabilities are needed - without a close partnership between the academic world and the industry we will fail to meet the goal.

- **Invited paper 1: “Is digital inclusion a good thing? How can we make sure it is?”, Richard Stallman, Free Software Foundation, USA**

Activities directed at “including” more people in the use of digital technology are predicated on the assumption that such inclusion is invariably a good thing. It appears so, when judged solely by immediate practical convenience. However, if we also judge in terms of human rights, whether digital inclusion is good or bad depends on what kind of digital world we are to be included in. If we wish to work towards digital inclusion as a goal, it behooves us to make sure it is the good kind.

- **Invited paper 2: “Technology for losers: re-equipping the excluded” Erkki Sutinen, University of Joensuu, Finland**

The agenda of technology for losers is closely related to a politically more correct concept of using technology to empower disadvantaged regions or individuals. Technology for losers emphasizes the fact that losers are those that had something valuable which they have subsequently, for whatever reason, lost. Although commonly used as a highly patronizing and even offensive term, the term loser, literally, refers to diverse users of technology such as people marginalized because of unemployment, individuals

with special needs, and poor people in developing regions. Hence, together they form a majority of the humankind. Working with losers requires technology designers to focus more on the urgent and urging, concrete problems, while the traditional perspective of disadvantaged users calls for correct strategies at the policy level. The key characteristic of designing technology for losers is the fact that it starts from the identification of their strengths rather than needs or lacks; thus recognizing their ultimate resources which can be released by re-equipping them with what they have lost.

• **Invited paper 3: “Interplay and implications of intellectual property and academic-industry collaboration to foster digital inclusion” Louis Masi and Dawn Tew, IBM**

Digital communications is both pervasive and vital across society. This creates a growing public interest in the technical standards that proscribe public communications. The public is demanding, "Open Standards." The rallying cry, "Open Standards," means different things to different groups. This paper reviews the different needs of specific groups of society and develops ten different requirements of Open Standards. To implement these requirements, actions by standardization organizations, international bodies (e.g., WIPO, WTO) and national patent office rules are proposed. Interestingly, technical changes, in the form of new standards, rather than legal or policy changes, appear to be the most important mechanism to meet the requirements of open standards.

6 Awards and recognitions

6.1 Best paper awards

At the conference, the four best papers were selected by an award committee from the ten best ranking papers that were recommended by the reviewers for receiving the best paper award (with a double-blind review) and received no rejection recommendations from other reviewers. Attendance at the conference was a hard requirement for being considered. The award committee was chaired by Mostafa Hashem Sherif (AT&T, USA) and composed by the following five distinguished conference attendees:

- Erkki Allan Sutinen (University of Joensuu, Finland)
- Helmut Schink (NSN, Germany)
- Kai Jakobs (RWTH Aachen University, Germany)
- Louis Masi (IBM, USA)
- Thoru Asami (University of Tokyo, Japan)

The ten best paper nominees chosen by the OC and PC are listed in Table 1, sorted by title in alphabetical order (they were indicated with an asterisk in the event’s programme).

Table 1: Nominees for best paper awards

Title	Authors
A model and system architecture for ubiquitous sensor network businesses	Masugi Inoue
An ID/Locator Split Architecture of Future Networks	Ved Kafle, Hideki Otsuki, Masugi Inoue
Discrimination in NGN service markets: Opportunity or barrier to digital inclusion?	Fernando Beltran, Lina Gomez
Enhanced Advertising for Next Generation Networks	Jose Simões, Thomas Magedanz, Luca Lamorte, Moltchanov Boris, Carmen Criminisi
Global effort on Bridging the Digital Divide and the role of ICT standardization	Mario Canazza
Mobile-NGN Architecture based on REST concept	Yoshitoshi Murata

Title	Authors
Quality of Service management for ISP: A model and implementation methodology based on ITU-T Rec.802 framework	Eva Ibarrola, Jin Xiao, Fidel Liberal, Armando Ferro
ROFSO: A universal platform for convergence of fiber and free-space optical communication networks	Kamugisha Kazaura, Kazuhiko Wakamori, Mitsuji Matsumoto Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki
Towards Digital Blood-Banking	Vasileios Spyropoulos, Maria Botsivaly, Aris Tzavaras, Panagiotoula Spyropoulou
Universal Digital Inclusion: Beyond Connectivity, Affordability and Capability	Mamello Thinyane, Alfredo Terzoli

Originally, three best paper prizes were planned. The award committee, in reviewing the papers, decided it would be fair that in addition to the first prize, three other papers also be awarded, as they were deemed of equal excellent quality. Hence, three papers received, on an equal footing, a second prize award. The recipients of the four best paper awards were:

- First prize: *ROFSO: A universal platform for convergence of fiber and free-space optical communication networks*, Kamugisha Kazaura, Kazuhiko Wakamori, Mitsuji Matsumoto (Waseda University, Japan); Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki (Osaka University, Japan)
- Second prize: *An ID/Locator Split Architecture of Future Networks*, Ved Kafle, Hideki Otsuki, Masugi Inoue (National Institute of Information and Communications Technology, Japan)
- Second prize: *Quality of Service management for ISP: A model and implementation methodology based on ITU-T Rec.802 framework*, Eva Ibarrola (University of the Basque Country, Spain); Jin Xiao (University of Waterloo, Canada); Fidel Liberal, Armando Ferro (University of the Basque Country, Spain)
- Second prize: *Discrimination in NGN service markets: Opportunity or barrier to digital inclusion?*, Fernando Beltran (University of Auckland, New Zealand); Lina Gomez (Centro de Investigacion de las Telecomunicaciones, Colombia)

6.2 Recipients of the Young Author Recognition Certificate

A certificate was provided to presenters that were also authors of papers accepted at the conference (either lecture or panel sessions) who did not pursue a Master degree more than three year previous to the conference and did not yet have a PhD title. They were:

- Jose Simões (Session 2.3)
- Lina Gomez (Session 3.2)
- Tullio Bertini (Session 7.2)
- Aline Zim (Poster P7)
- Kei Wada (Poster P8)
- Juan Pablo Bernal (Poster P9)
- Paul Plantinga (Poster P11)
- Alberto Diez Albaladejo (Poster P12)

7 Exhibition

A side exhibition was organized in parallel with the conference to give visibility to Latin American universities that, for various reasons, were not presenting papers at the conference. Various Latin-American institutions were contacted and offered free exhibition space on a first-come-first-served basis. Six South American universities participated in the exhibit:

- UTN Facultad Regional Mendoza – Grupo GridTICs (Argentina) – *Messrs Atilio Ranzuglia and Marcelo Ledda*
- ITBA, Instituto Tecnológico Buenos Aires (Argentina) – *Mr Ovide Alvarez and Mrs Elena Lope Nieves*
- Facultad de Ciencia y Tecnología de la Universidad Autónoma de Entre Ríos (Argentina) – *Messrs Marino Schneeberger and Antonio Foti*
- Centro Internacional de Investigación Científica en Telecomunicaciones, Tecnologías de la Información y las Comunicaciones ([CITIC](#), Ecuador) – *Mr Daniel Triviño*
- Universidad Nacional de Colombia (Colombia) – *Ms Solvey Janeth Perilla Burbano and Mr Palacio Niño*
- Universidad Distrital Francisco José de Caldas (Colombia) – *Mr Giovani Mancilla*

The exhibitors showcased their institutions and some of their projects, allowing participants at the conference from both academic and ITU constituencies to know better some of the research activities in South America and to create networking opportunities.

This initiative was welcomed by the participants and the format could be repeated in future kaleidoscope events.

8 Results from the closing panel

Digital inclusion should not be at the expense of freedom, free/libre software and new business models could develop a better Digital world. It is very important that everyone is engaged with personal commitment to achieve the freedom-kind Digital Inclusion. The ‘human element’ is the most important, so all design must explicitly accommodate this.

Digital exclusion can take many forms, depending on the environment and the unit of measure used; a careful designing can stimulate innovations able to re-include the digital excluded.

Accessibility for all should always be taken as an inspiring principle. Innovative technologies produce new challenges in addressing the digital divide as well as new accessibility issues. ITU-T can provide an environment to make it possible to bridge and harmonize between various societies and various communities, including persons with/without disabilities.

The various forms of digital exclusions provide evidence that one solution does not fit all. Improving international co-operation and invest more resources in international standardization is a must. When designing standards, it is necessary to pay particular attention to their implementation, adaptability, application and costs. It is also necessary to foresee targeted educational activities.

The ICT sector is characterized by an extremely high rate of innovation, and accordingly by comparably short product life cycles. There is a time gap between the implementation of an ICT equipment and the commercialization of a service. The governments’ interventions on ICT should depend on the type of innovation and the time of intervention should be chosen to stimulate the ICT sector.

9 Conclusions

Participants were unanimous that this was a very successful event which displayed excellent quality papers. Attendance was also excellent in *both* Lecture and Poster sessions. Participants at the closing session were also enthusiastic that this event be repeated yearly.

Cooperation with academia needs to be reinforced, in particular to encourage the participation and involvement of experts from the academic communities in the development of standards.

Many interesting papers were presented and discussed at the conference that are relevant for standardization and should be made available for consideration of the study groups, e.g. the study group chairmen could input relevant papers via TD(s) to their study groups

Discussions at the various sessions and in particular at the panel provided many insights on future editions of the event as well as on ways forward to enrich the ITU standardization process, both in terms of technical proposals for current work items, ideas on how to handle more visionary approaches, and steps to increase participation of academia and research organizations in the ITU standardization work.

The **third Kaleidoscope academic conference** should attract more participants, leveraging on the success of both first and second events. The theme is currently under discussion as well as the venue which could be in Asia or Africa, depending on country invitations, in the middle of December 2010. Information will be available at <http://itu-kaleidoscope.org/2010>.

Annex A: Final programme

- **Note 1:** this programme including bios, photos, abstracts and presentations is available at: <http://itu-kaleidoscope.org/2009/programme.html>. Poster Session information can be found at: <http://itu-kaleidoscope.org/2009/lop-papers.html>.
- **Note 2:** The * below indicate the ten papers that were nominated for the best paper awards. Underlined names indicate the presenters.

Day 1: 31 August 2009

09:00 - 10:30: Opening Plenary

Plenary chairman: Yoichi Maeda, Kaleidoscope General Chairman / NTT

- **Welcome** by Gustavo Pulti, Mayor of Mar del Plata, and Carlos Lisandro Salas, Secretary for Communications, Argentina
- **Address and introduction to ITU-T** by Malcolm Johnson, Director, Telecommunication Standardization Bureau, ITU
- **Keynote speech** by Tomonori Aoyama, Keio University, Japan
- **Keynote presentation** by Carlos Uzal, Telefónica Latin America, Argentina and Sigurd Schuster, Nokia Siemens Networks, Germany

10:30 - 11:00: Coffee break

11:00 - 12:30: Session 1 – Is digital inclusion a good thing?

Session chairman: Mostafa Hashem Sherif, AT&T, USA

- **Invited paper** by Richard M Stallman, President, Free Software Foundation, USA
- **Open discussion**

12:30 - 14:00: Lunch

14:00 - 15:30: Session 2 – Leveraging network-enabled services for digital inclusion

Session chairman: Alfredo Terzoli, Rhodes University, South Africa

- **Invited paper:** Technology for losers: re-equipping the excluded
Erkki Allan Sutinen, University of Joensuu, Finland
- **S2.1 Towards Digital Blood-Banking ***
Vasileios Spyropoulos, Maria Botsivaly, Aris Tzavaras (Technological Education Institute of Athens, GR); Panagiotoula Spyropoulou (General Hospital of Piraeus Tzaneion, GR)
- **S2.2 Quality of Service management for ISP: A model and implementation methodology based on ITU-T Rec.802 framework ***
Eva Ibarrola (University of the Basque Country, ES); Jin Xiao (University of Waterloo, CA); Fidel Liberal, Armando Ferro (University of the Basque Country, ES)
- **S2.3 Enhanced Advertising for Next Generation Networks ***
Jose Simões, Thomas Magedanz (FOKUS Fraunhofer Institute, DE); Luca Lamorte, Moltchanov Boris, Carmen Criminisi (Telecom Italia, IT)

15:30 - 16:00: Coffee break

16:00 - 17:50: Session 3 – Bridging the Digital Divide for the individual

Session chairman: Kai Jacobs, RWTH Aachen University, Germany

- **Invited paper:** Interplay and implications of intellectual property and academic - Industry collaboration to foster digital inclusion
Louis Masi, Dawn Tew (IBM Corporation)

- **S3.1** A model and system architecture for ubiquitous sensor network businesses *
Masugi Inoue (National Institute of Information and Communications Technology, JP)
- **S3.2** Discrimination in NGN service markets: Opportunity or barrier to digital inclusion? *
Fernando Beltran (University of Auckland, NZ); Lina Gomez (Centro de Investigacion de las Telecomunicaciones, CO)
- **S3.3** Global effort on Bridging the Digital Divide and the role of ICT standardization *
Mario Canazza (National Telecommunications Agency, BR)
- **S3.4** Universal Digital Inclusion: Beyond Connectivity, Affordability and Capability *
Mamello Thinyane (University of Fort Hare, ZA); Alfredo Terzoli (Rhodes University, ZA)

18:00 - 19:30: Poster session - Showcasing Digital Inclusion opportunities

P.1	Lower the Frequency to Trigger Digital Inclusion? A Comparative Study Among Different VHF/UHF/SHF Solutions for the Implementation of Broadband Wireless Access <u>Daniele Trincherò</u> (Politecnico di Torino, IT); <u>Riccardo Stefanelli</u> , Federico Longobardi, Alessandro Galardini, Benedetta Fiorelli (iXem Labs, Politecnico di Torino, IT)
P.2	On the relevance of Open Wireless Sensors for NGN <u>Marco Zennaro</u> (KTH, IT); Herve' Ntareme (KTH, SE); Antoine Bagula, Gordon Inngs, Simon Scott (University of Cape Town, ZA)
P.3	Techno-Economical Comparison Between Gpon And Epon Networks Mauricio López Bonilla, <u>Felipe Rudge Barbosa</u> , Edson Moschim (State University of Campinas, BR)
P.4	A demonstrative link design of RoFSO and its Optimum performance - Indoor short range experiment and a new model of optical scintillation <u>Takeshi Higashino</u> , Katsutoshi Tsukamoto, Shozo Komaki (Osaka University, JP); Kamugisha Kazaura, Kazuhiko Wakamori, Mitsuji Matsumoto (Waseda University, JP)
P.5	Strategies for using international domain standards within a national context: the case of the Dutch temporary staffing industry <u>Erwin Folmer</u> (University of Twente, NL); Jack Verhoosel, Michael van Bekkum (TNO-ICT, NL)
P.6	Application of emerging wireless technologies for videoconference and telehealth in rural migrant communities in Oaxaca, Mexico <u>Arturo Serrano Santoyo</u> , Alvaro Armenta (CICESE, MX)
P.7	Digital Inclusion and Cyberart: the case of the project PROEJA Transiarte Tube Lucio Teles, Aline Zim (University of Brasília, BR)
P.8	A Design of XML Schema for Information Presentation System using Augmented Reality in New Generation Network Management <u>Kei Wada</u> , Yoshihiro Kawahara, Tohru Asami (The University of Tokyo, JP)
P.9	Feasibility study and implementation by means of a pilot plan of a system of transmission of medical images for the diagnosis of patients between general doctors and medical specialists <u>Juan Bernal</u> , Karen Espitia (Universidad Distrital Francisco Jose de Caldas, CO)
P.10	Policy-based Charging and High Precision Control for Converged Multi-gigabit IP Networks <u>Taesang Choi</u> , Sangsik Yoon, Sangwan Kim, Dongwon Kang, Joonkyung Lee (Electronic and Telecommunications Research Institute, KR)
P.11	Digital Inclusion through Localism <u>Paul Plantinga</u> (Monash University, ZA)
P.12	Digital inclusion opportunities in the telecommunications sector through NGN and Open Source tools: the Open IMS core experience Alberto Diez Albaladejo, Peter Weik, Dragos Vingarzan, Thomas Magedanz (Fraunhofer FOKUS, DE)

19:30 - 21:00: Welcome reception

Day 2: 1 September 2009

09:00 - 10:30: Session 4 – Network architectures today and tomorrow

Session chairman: Helmut Schink, NSN, Germany

- **S4.1** RoFSO: A universal platform for convergence of fiber and free-space optical communication networks *
Kamugisha Kazaura, Kazuhiko Wakamori, Mitsuji Matsumoto (Waseda University, JP); Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki (Osaka University, JP)
- **S4.2** An ID/Locator Split Architecture of Future Networks *
Ved Kafle, Hideki Otsuki, Masugi Inoue (National Institute of Information and Communications Technology, JP)
- **S4.3** Mobile-NGN Architecture based on REST concept *
Yoshitoshi Murata (Iwate Prefectural University, JP)
- **S4.4** Reliability and Scalability Analysis of Low Cost Long Distance IP-Based Wireless Networks
Riccardo Stefanelli, Alessandro Galardini (iXem Labs, Politecnico di Torino, IT); Daniele Trincherò (Politecnico di Torino, IT)

10:30 - 11:00: Coffee break

11:00 - 12:00: Session 5 – Broadband for everyone

Session chairman: Thoru Asami, University of Tokyo, Japan

- **S5.1** Innovative broadband models for digital inclusion
Supavadee Aramvith (Chulalongkorn University, TH), Prasit Prapinmongkolkarn, Akarapon Kongchanagul (National Telecommunications Commission, TH) Ekachai Phakdurong, Udomsak Luengkhan, Chatpetch Bunyakate (Thaicom PLC, TH)
- **S5.2** Dynamic Resource Management for Downlink Multimedia Traffic in OFDMA Cellular Networks
Dhananjay Kumar, Chellappan Chellappan, Srividhya Subramanian, Mariappan Pandian, Martheeswaran Mohandoss (Anna University, IN)
- **S5.3** Optical Transport Networks: from all-optical to digital
Virgilio Puglia (IT); Olga Zadedyurina (University of Trento, IT)

12:00 - 13:30: Lunch

13:30 - 14:30: Session 6 – Open and accessible services for digital inclusion

Session chairman: Mitsuji Matsumoto, Waseda University, Japan

- **S6.1** iCanSee: A SIM Based Application for Digital Inclusion of the Visually Impaired Community
Hannah Thinyane (Rhodes University, ZA); Mamello Thinyane (University of Fort Hare, ZA)
- **S6.2** An Asterisk-based framework for e-learning using open protocols and open source software
Mosiuoa Tsietzi, Zelalem Shibeshi, Alfredo Terzoli, George Wells (Rhodes University, ZA)
- **S6.3** Innovations for Digital Inclusion: Leveraging Next Generation Networks for Human Development from the Bottom of the Pyramid
Walter Brown (Monash South Africa, ZA). Presenter: Hannah Thinyane

(10 minutes in between sessions)

14:40 - 15:40: Session 7 – Public policies, standards and digital inclusion

Session chairman: Victoria Sukenik, Secretary of Communications, Argentina

- **S7.1** Government Role in Information and Communications Technology Innovations
Mostafa Hashem Sherif (AT&T, US); DongBack Seo (University of Groningen, NL)
- **S7.2** New model for cost of equity evaluation in emerging markets: the telecommunication sector in Brazil
Tullio Bertini (National Telecommunications Agency, BR)
- **S7.3** ICT Standardization in China, the EU, and the US
Kai Jakobs (RWTH Aachen University, DE)

15:40 - 16:10: Coffee break

16:10 - 16:40: Session 8 - Best paper awards and Young Author recognition

Session chairman: Mrs Alicia Alonso Becerra, Rector, José A. Echeverría Superior Polytechnic Institute, Cuba

- Presentation of Best award papers and Young author recognition

16:40 – 17:30: Session 9 – Wrap-up

Session chairman: Mostafa Hashem Sherif, AT&T, USA

- Summary of the second Kaleidoscope conference (Panel with session chairs)

17:30: Closing by Yoichi Maeda, Kaleidoscope General Chairman / NTT

Annex B:
Short comparison of Kaleidoscope 2008 and 2009 numbers

	ITU-T Kaleidoscope 2008 (#1)	ITU-T Kaleidoscope 2009 (#2)
Venue, date	Geneva, 12-13 May 2008	Mar del Plata, Argentina, 31 Aug-1 Sep 2009
Title	Innovations in NGN – Future Network and Services	Innovations for Digital Inclusion
Technical co-sponsor	IEEE Communications Society	IEEE Communications Society
Supporters	Cisco; Intel; ICF; SUN	Cisco; Nokia
Participants	more than <u>220</u> participants, from <u>48</u> countries	more than <u>110</u> participants, from 24 countries
Organizing Committee	<u>14</u> Members	<u>14</u> Members
Programme Committee	<u>136</u> experts from academia and industry worldwide	<u>113</u> experts from academia and industry worldwide
Papers submitted	<u>143</u> scientific papers received	<u>83</u> scientific papers received
Papers accepted	<u>32</u> Lecture papers plus <u>22</u> Poster papers	<u>20</u> Lecture papers plus <u>12</u> Poster papers
Acceptances rate	around 22% for Lecture presentation (37.7 % including Posters)	around 24% for Lecture presentations (38.5 % including Posters)
University Exhibition	Not organized.	Local university exhibition organized in parallel (six exhibitors)
IEEE Communications Magazine	Kaleidoscope Special edition in May 2009 (pp. 80-113)	Planning phase