GLOBAL Communications NEWSLETTER

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The III International Conference on Digital Citizenship, San Sebastián, Spain, Showed New Ideas About How to Take Advantage of The New Technologies for Entrepreneurship

By Juan Pedro Muñoz-Gea, Pilar Manzanares-Lopez, Josemaría Malgosa-Sanahuja, Universidad Politécnica de Cartagena, Spain

In Spain, businesses and citizens are very concerned due to the fact that economic news is increasingly disagreeable, and the economic crisis remains a pervasive theme in the media.

Four years after the recession began, jobs are still being destroyed and there are an increasing number of companies which are forced to close their doors. Unfortunately, this situation is shared by most of the European Union countries.

Unfortunately, we cannot know how long this crisis will last and when families, small businesses and entrepreneurs will have a break. Despite these circumstances, the difficulties often create opportunities, and today the fact is that opportunities are online. Look for a moment some of the most successful startups in recent years, such as Spotify or Dropbox. What do they have in common? Exactly. Internet.

The III International Conference on Digital Citizenship, which was held in San Sebastian (Spain) on 8 and 9 May, has addressed these issues with professionals and experts who have presented the opportunities that they see nowadays. This conference was organized by Diariovasco.com, the leading on-line media company in the Basque Country (Spain), which forms part of Vocento, the leading multimedia communications group in Spain, whose activities include regional press, local television, national press, film and television production, digital television, radio and the Internet. Some of the speakers of the Conference were: Paul Mockapetris, considered one of the fathers of the Internet for having invented the Domain Name System (DNS); Tony Hughes, who was instrumental in establishing the International Centre for Digital Content in the UK; Matt Barrie, chief executive at Freelancer.com, the world's largest outsourcing portal; Kim Jin-Sook, researcher and managing director of the School Education Information Division of KERIS (Korea Education & Research Information Service). The event has increased in profile thanks to its private-public partnership and it has the backing of the Basque Government, Gipuzkoa Provincial Council, the Deusto Foundation and the Institute for Democratic Governance.

Under the title Learning to Unlearn, this year's conference has organized parallel events to help the participants to go further into certain aspects of the new network-society in which we are living, where citizens, companies, educational centers and, in general, society as a whole are coming to grips with new contexts and way of acting and relaxing. Experts believe that the economic situation is not the best, but there are recipes to try to leave the economic crisis behind. They believe that entrepreneurs are managing to take their brands and products from scratch to everyone thanks to several common ingredients: innovation, courage, work and use of new technologies. In this newsletter, some of the main ideas and approach discussed in this conference are outlined.

If you have an idea, if you are eager for business, but the situation does not allow you to follow a conventional business model, you have to think about the Network. Internet has become a refuge for SMEs and entrepreneurs, due to all the advantages it offers. Internet makes it possible to establish an online business with low investment because with very little money it is possible to get far away. It also offers the flexibility which other platforms do not allow, giving the ability to adjust parameters quickly and easily, such as server capacity, designs, etc. In short, it allows you to adjust the business to customer needs and trends.

Most international experts agree to announce the change of current economic model, characterized by the new possibilities offered by the Internet through: e-commerce, the cloud, TV on handheld devices, social networks and advertising. For experts, e-commerce is not just a new sales channel but a new form of brand-consumer relationship that will also impact on organizations, processes and systems to transform the entire organization. The cloud is emerging as the new environment that will develop products and value-added services together with the data capture and management. This, together with the evolution of users, more informed and therefore demanding, they will demand different relationships with brands and products.

Cell phones will be the mainstay of on-demand media consumption, focused on the cloud. In addition, it is highlighted the new role of social networks as global generators of content. Facebook has emerged as the largest generator of content in the world, because users are the content themselves. The convergence will offer both challenges and great opportunities, the search will be social, television will be the Internet, the computer will be mobile and the user will be the content. In addition, the cloud will consume more and more content and services, and paying only for the access.

Entrepreneurs can start developing their new products for the Internet by means of the establishment of startups. One advantage of startups compared to traditional projects should be its agility: everything has to go very fast. On the Internet the

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IEEE WCNC 2012 Concludes One of the Most Successful Meetings in its History in Paris, France

By Prof. Hikmet Sari, WCNC 2012 General Chair, SUPELEC, France

Held only minutes away from the Arc de Triomphe and the famous Avenue Champs Elysées, known as "the world's most beautiful avenue," the 2012 IEEE Wireless Communications and Networking Conference (WCNC 2012) recently completed one of the most successful meetings in its history. Throughout the four-day international event held on April 1 – 4, 2012 in Paris, France, more than 1,000 attendees representing 60 separate countries converged at the Palais des Congrès – Porte Maillot to discuss the latest next-stage wireless communications and networking trends, applications & benefits.

Dedicated to the advancement of the entire range of wireless technologies, IEEE WCNC 2012 commenced on Sunday, April 1 with nine tutorials and seven workshops hosted by leading international researchers and industry experts representing the United States, Canada, France, Australia, Italy, Spain Sweden, China, the United Kingdom and numerous other countries. Throughout the day, hundreds of attendees explored topics ranging from "Future Green Communications," "Broadband Femtocell Technologies," "M2M Communications," and "4G Mobile Radio Access Networks" to "Wireless Vehicular Communications and Networks," "Hybrid Optical Wireless Access Networks" and "Wireless Cloud and White Space Oriented Networks." Following in the IEEE WCNC tradition, one free tutorial registration was also included with each conference registration, with the tutorial offered by Dr. David Gesbert (IEEE Fellow), Professor in the Mobile Communications Dept. at EURECOM in France attracting a record-breaking 122 registrants.

The main body of the conference then proceeded from Monday, April 2 to Wednesday, April 4 with the presentation of four keynotes, nine high-level business panels and 612 papers offered throughout 116 technical sessions. Specific highlights included the Monday morning plenary speeches of Gee Rittenhouse, Chairman of the Board of GreenTouch and Siavash Alamouti, Group R&D Director of Vodafone. During his opening address, Dr. Rittenhouse spoke about "Green Wireless Networks" and the latest technologies and research aspiring to improve network energy efficiencies by a factor of 10,000, while Dr. Alamouti, who is best known for the space-time code that carries his name and included today in all recent wireless standards, detailed the "Networks of the Future – Some Challenges Ahead." This included a discussion of the challenges present in "creating self-organizing heterogeneous networks" and the RF issues needed to be overcome to ensure "the seamless management of end-user experiences across a mixture of cell types."

WCNC 2012 opening session.

WCNC 2012 banquet.

Afterwards, IEEE WCNC 2012 continued with approximately 150 presentations highlighting the latest advances in mobile, wireless and ad hoc sensor and mesh networking as well as the executive panels titled "Will the Internet of the future be a Wireless Internet?" "Mobile Communications Systems for Vertical Industry Sectors – A Major Building Block for the Future Internet" and "Collaboration between Wireless Industry and Academia." Later that evening, more than 850 attendees took part in the Welcome Reception, which was held in the magnificent Hôtel de Ville de Paris. This special event was enriched by the Hall's Neo-Renaissance façade and rich interior decorations that range from the Renaissance to the Belle Epoque era and have served as the backdrop of the capital city's municipal institutions since 1357.

On Tuesday morning, the conference renewed with the keynotes of Thomas Sälzer, R&D Director of Huawei Technologies France, who addressed "Embracing Heterogeneity in Wireless Networks" and Andrea Goldsmith from Stanford University, who talked about "What Lies Ahead for Cellular System Design?" and the significant breakthroughs needed to lower energy consumption and increase cellular network capacity, coverage reliability, and spectrum efficiency. These presentations then continued with several panels entitled "Small Cells: A Smart Way Towards Future Mobile Broadband," "The Role of Shared Use in Solving (Project) Spectrum Crunch" and "Harnessing Mobile Broadband Technologies and Innovation."

That night, more than 300 IEEE WCNC 2012 peers and colleagues gathered for the conference banquet at the Pavillon Dauphine built in 1913 on the site of the Pavillon Chinois, the bottom of Avenue de l'Impératrice, now called Avenue Foch. Originally constructed by the City of Paris to serve as an official site for dignitaries arriving from the Porte Dauphine station, this establishment is used today for receptions. Banquet attendees went through the grounds' regal gardens contemplating the splendid architecture and then spent the entire evening enjoying the fine establishment's rich French cuisine and the banquet entertainments.

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IEEE Technology Time Machine 2012 Symposium on Technologies Beyond 2020

By Sebastian Zaunseder, Dresden University of Technology, Germany

The second IEEE Technology Time Machine (TTM) Symposium was held from 23 – 25 May 2012 in Dresden, Germany. Internationally renowned speakers from industry, politics and research institutions forecasted the future of high impact emerging technologies beyond the year 2020 and discussed their visions and the upcoming challenges together with over 250 attendees representing more than 30 countries.

Technical forecasting is a fascinating, though challenging task. In 1965, Gordon Moore forecasted an annual doubling of the components within an integrated circuit for the following 10 years [1]. Although later on slight modifications were introduced to his original prediction, the accuracy of Moore's vision is outstanding. The 10 years projection, today referred to as Moore's Law, defined the roadmap of the semiconductor industry for the last decades, thereby becoming a self-fulfilling prophecy.

Although his prediction is probably unique in the degree of popularity and success, Gordon Moore is by far not the only one to predict the development of future technologies. The interest in technologies that are yet to come was, and still is, immense - and comprehensive: it is common to executive staff in politics, industry and research seeking for sustainable decisions as well as to individuals who merely want to know how technology will affect their own future lives.

Being of common interest, naturally even for the IEEE as worldwide acting union of engineers, perspective technologies have always played an integral role. In 1962, the Institute of Radio Engineers (which pooled together with the American Institute of Electrical Engineers to the IEEE in 1963) asked a group of fellows to make predictions on the state of technology in 2012 [2]. Amongst other things, mobile communication facilities, flat screens and electronic newspaper readers were –as we know today - correctly predicted. The formation of the IEEE Future Directions Committee (FDC) in 2009 reflects IEEE's ongoing structural interest in future technologies. The FDC, chaired by Communications Society Past-President Roberto de Marca, is devoted to emerging technologies and new applications of current technologies. The FDC has an interdisciplinary scope and presently has several initiatives under way in a range of topics, ranging from cloud Computing to Transportation electrification, engaging several IEEE Societies. FDC's main event, the IEEE Technology Time Machine, is intended to bring together renowned experts from industry, politics and research institution to share their visions on future technologies, enable discussions and provide a visionary, but still well-founded, outlook into the future.

The first IEEE TTM Symposium took place in Hong Kong in 2011 [3]. This year's edition took place in Dresden, right in the heart of Saxony's semiconductor industry. Beyond its industrial facilities, Dresden and its surroundings stand out due to its University of Technology, a unique agglomeration of extramural research institutes and a rich cultural heritage. TTM's accompanying program even presented some places of interest to its guests: attendees were offered two industry excursions (Transparent Factory of VW and the Biotechnology Center of the TU Dresden) and a visit to the inspiring environment of the Albertinum Art Gallery during the evening event.

The Symposium itself also did not fall short of the surrounding scenery at all: the organizers managed to attract a number of renowned speakers and their visions. According to the speakers' list, those visions were widespread. Within their plenaries, Dr. Truchard (CEO, National Instruments), for

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Quick Facts on IEEE TTM 2012 in Dresden		
Date, Venue	May 23–25, Dresden	
Webpage	http://ttm.ieee.org	
Committe Chairs	Roberto de Marca, Steering Committe Chair Maurizio Decina, General Chair Gerhard Fettweis, Program Committe Chair	
Speakers	Six keynote speakers, more than 40 panel speakers (including challengers)	
Attendance	Approximately 250 attendees from more than 30 countries	
Panels	Networks Supporting Future Applications Cloud Computing Electronics Beyond CMOS Smart Power	Cyber Physical Systems Collective Intelligence Future Applications Future of Media

Dr. Truchard (CEO and cofounder of National Instruments) was one of the experts who shared visions at the IEEE TTM 2012 in Dresden.

W. Tonti (IEEE, FDC), J. R. B. de Marca (Chair of the FDC), M. Decina (General Chair TTM 2012) and G. Fettweis (Program Chair TTM 2012) (from left to right) inform onsite about the IEEE TTM 2012.

WCNC 2012/*continued from page 2*

Wednesday marked the event's final day, which was highlighted by two more panel sessions and another full day of technical paper presentations. In the morning, communications authorities from France, Italy, UK and Germany joined to discuss the challenges of "Facing the Growth of Mobile Broadband: The Spectrum Dilemma" with a second group of leading researchers exploring the issues of "How to Monetize Wireless Data" and developing winning business models. In the afternoon, the conference's technical agenda concluded with hundreds of presentations exploring topics like "Wideband Spectrum Sensing Frameworks," "Cooperative Routing Protocols in Cognitive Radio Ad-Hoc Networks," "Physical Layer Reliability vs. ARQ in MIMO Block-Fading Channels," "Performance Evaluations for Smart Grid Data Aggregations" and "Resilience Wireless Enhancements for Neighborhood Watching Systems."

In all, IEEE WCNC successfully completed its 2012 event by offering communications professionals worldwide with the opportunity to not only network with global colleagues, but also address some of the most important technical and business issues in wireless communications and networking. This mission will continue next year with IEEE WCNC 2013, which will be held on April 7 – 10, 2013 in Shanghai, China. With the submission process already underway and a "Call for Papers" deadline set at September 22, 2012, IEEE WCNC 2013 planners have begun reviewing original entries highlighting the latest advancements in wireless communications.

For more information on IEEE WCNC 2013 including registration details, ongoing conference updates and proposal information, please contact Heather Ann Sweeney of IEEE ComSoc at h.sweeney@comsoc.org or visit www.ieee-wcnc.org/2013 . All visitors to the IEEE WCNC 2013 website are also invited to reach out to friends and colleagues through the conference's Twitter, Facebook and LinkedIn pages.

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http://www.comsoc.org/gcn

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TIME MACHINE 2012/*continued from page 3*

example, projected the increasing importance of software-based measurement systems, Mr. Peter Bauer (CEO, Infineon) depicted Infineon's Law and upcoming technological challenges and Prof W. Lehner (TU Dresden) described how Highly Adaptive Energy-Efficient Computing could be the solution to the increasing energy demand of the global internet usage.

Four plenaries, two visionary keynotes and ten panels (two in parallel) offered a wide variety of topic to the audience. Together with profound discussions which were stimulated by a designated 'Challenger', the panels covered a broad range of key technologies. The 'Quick facts table' contains a complete panel list and some more details on IEEE TTM 2012. A White Paper and some extended abstracts are to be published at the middle/end of this year and will detail the contents of the panels.

Looking back to the IEEE TTM 2012, one question remains unanswered: to which extent will the projections meet the reality? There is no sure answer to this. However, Gordon Moore could not be sure when he made his prediction. But he is an expert and, apparently, he was able to extrapolate the development based on his knowledge and his intuition. And so might have done the speakers of TTM – renowned experts in their fields, whose forecasts can be assumed not to be far from the reality. The future will tell us. But probably before some of the visions will have come true you have the possibility to get to know refined visions and join the discussion on future trends at next year's IEEE TTM which will take place in the United States west coast again in May.

Further Reading

[1] Gordon E. Moore: Cramming more components onto integrated circuits, Electronics. 38, 8, 1965, 114–117
[2] Communications and Electronics-2012 A.D., http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=4066696
[3] The IEEE Technology Time Machine 2011: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6005151

DIGITAL CITIZENSHIP/*continued from page 1*

key is to go fast. The decisions are made overnight and it is constantly improvised based on user demand. Nobody knows what will happen. Who knew that Facebook would work well? The reason that made that Facebook worked well was that users accepted it and the team behind Facebook was fast enough to meet the demand of users. At first, entrepreneurs have to continually make improvements and make it real. No time for testing. It is a kind of suicidal strategy, without evidence, without assessments. Things are not discussed: they are made. And they are made in a direct and simple way, without frills.

On the Internet the value of experience is relative. Nobody knows how things will evolve. Experience is not essential; perhaps it may be good not having it, because experience is volatile. After six months Internet has changed. Everything is very fast. At first, entrepreneurs do not need money to start, large teams or the payment of software licenses. What is needed is time. In fact, we can see the time spent as money spent, but at least we do not need to have money in our pocket: we need time. We also need that the governments, in conjunction with trade unions, define new labor frameworks according to this new paradigm.

Editor's Note: Due to technical difficulties, photos were not included in the article "Information Infrastructure in India Takes a Giant Step Forward: TiECon2012 Keynote by Sam Pitroda" in the July issue of the IEEE Global Communications Newsletter. Those pictures have been posted in a related article at: http://community.comsoc.org/blogs/aweissbergersbc-globalnet/telecom-revolution-india-and-governments-role-making-it-happen-or-not