The Sixth Advanced International Conference on Telecommunications [AICT 2010] held 9-15 May 2010 in Barcelona, Spain, covered a variety of challenging telecommunication topics ranging from background fields like signals, traffic, coding, communication basics up to large communication systems and networks, fixed, mobile and integrated, etc. Applications, services, system and network management issues will also receive significant attention.

The spectrum of 21st Century telecommunications is marked by the arrival of new business models, new platforms, new architectures and new customer profiles. Next generation networks, IP multimedia systems, IPTV, and converging network and services are new telecommunications paradigms. Technology achievements in terms of co-existence of IPv4 and IPv6, multiple access technologies, IP-MPLS network design driven methods, multicast and high speed require innovative approaches to design and develop large scale telecommunications networks.

Mobile and wireless communications add profit to large spectrum of technologies and services. We witness the evolution 2G, 2.5G, 3G and beyond, personal communications, cellular and ad hoc networks, as well as multimedia communications.

Web Services add a new dimension to telecommunications, where aspects of speed, security, trust, performance, resilience, and robustness are particularly salient. This requires new service delivery platforms, intelligent network theory, new telecommunications software tools, new communications protocols and standards.

We are witnessing many technological paradigm shifts imposed by the complexity induced by the notions of fully shared resources, cooperative work, and resource availability. P2P, GRID, Clusters, Web Services, Delay Tolerant Networks, Service/Resource identification and localization illustrate aspects where some components and/or services expose features that are neither stable nor fully guaranteed. Examples of technologies exposing similar behavior are WiFi, WiMax, WideBand, UWB, ZigBee, MBWA and others.

Management aspects related to autonomic and adaptive management include the entire arsenal of self-utilities. Autonomic Computing, On-Demand Networks and Utility Computing together with Adaptive Management and Self-Management Applications collocating with classical networks management represent other categories of behavior dealing with the paradigm of partial and intermittent resources.

Therefore, the Internet, converged networks, ad-hoc networking, sensor networks, and satellite communications require a management paradigm shift that takes into account the partial and intermittent availability of resources (pi-resources), including
infrastructure (networks, computing, and storage) and service components, in distributed and shared environments. The term pi-resources becomes the central concept in next generation networks, where optimization, shared resources, mobile resources, autonomic resource or service replacement, self-isolation, partial availability and other features become inherent. A resource is called partial (p-resource) when only a subset of conditions for it to function to complete specification is met, yet it is still able to provide (potentially degraded) service, while an intermittent or sporadic resource (i-resource) will be able to provide service for limited and potentially unpredictable time intervals only.

Partial and intermittent services (pi-services) are relevant in environments characterized by high volatility and fluctuation of available resources, such as experienced in conjunction with component mobility or ad-hoc networking, where the notion of traditional service guarantees is no longer applicable. Other characteristics, such as large transmission delays and storage mechanisms during the routing, require a rethinking of today's paradigms with regards to service assurance and how service guarantees are defined.

E-learning refers to on-line learning delivered over the World Wide Web via the public Internet or the private, corporate intranet. The workshop on e-learning on telecommunications event is intended to provide an overview of technologies, approaches, and trends that are happening right now.

The constraints of e-learning are diminishing and options are increasing as the Web becomes increasingly easy to use and the technology becomes better and less expensive. As the ease of execution increases, more and more institutions are discovering the benefits of delivering training via the Web. Interest in e-learning is at an all-time high, and the workshop wants to serve as a stimulus to accelerate collaboration and dialog among the e-learning providers, trainers, IT researchers and the lifelong, self-directed learners. Such business trends as an increased global economy, the pressures for rapid development, the necessity of teamwork are shaping the present state and the future of e-learning. Employees are increasingly aware that they must continue to update and advance their skills if they want to understand the state-of-the-art technologies and remain valuable to their organizations. This means that learners will be more and more self-directed, and they will want access to what they need when they need it. The Internet based educational materials and the e-learning providers have to meet this demand.

The workshop focused on the latest trends in e-learning and also on the latest IT technology alternatives that are poised to become mainstream strategies in the near future and will influence the e-learning environment.

The conference participants considered how, when and where e-learning helps to solve the training needs, what are the challenges of creating and managing vast amounts of e-learning, how the upcoming IT technologies influence e-learning and how the Web based educational materials should be developed to meet the demands of the long-life, motivated and very often self-directed students.
Since A K. Erlang developed fundamental theories in the field of teletraffic several major technology and market evolutions challenged the academia and industry. Traffic is one of the basic aspects when designing, controlling and measuring the performance of a network or interoperating networks. Transport technologies evolved from heterogeneous to homogeneous, yet co-existing solutions are everywhere. Speed and bandwidth dramatically improved, changing the way the traffic is modeled and interpreted. New access technologies and their co-existence raise aspects of traffic aggregation and filtering. Wireless and mobile technologies ensuring mobile communications as well as multiple user profiles and locations impose new business models.

The conference also addressed teletraffic modeling and management. It covered traffic theory, traffic control and QoS, performance evaluation methods, network design and optimization of wired and wireless networks, and simulation methodology for communication networks.

We take here the opportunity to warmly thank all the members of the AICT 2010 Technical Program Committee, as well as the numerous reviewers. The creation of such a broad and high quality conference program would not have been possible without their involvement. We also kindly thank all the authors who dedicated much of their time and efforts to contribute to AICT 2010. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

Also, this event could not have been a reality without the support of many individuals, organizations, and sponsors. We are grateful to the members of the AICT 2010 organizing committee for their help in handling the logistics and for their work to make this professional meeting a success.

We hope that AICT 2010 was a successful international forum for the exchange of ideas and results between academia and industry and for the promotion of progress in the field of telecommunications.

We are convinced that the participants found the event useful and communications very open. We also hope the attendees enjoyed the beautiful surroundings of Barcelona, Spain.

**AICT 2010 Chairs:**
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