



1st International Conference on Information
and
Communication Technologies



Leadership and Ideas for Tomorrow

PROCEEDINGS OF



1ST INTERNATIONAL CONFERENCE ON INFORMATION AND COMMUNICATION TECHNOLOGIES



Hotel pearl continental, Karachi, Pakistan



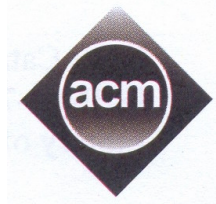
27th-28th August 2005



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Theme: Information and Communication Technologies



Editors: Dr. Wasim A. Khan
Ms. Fatima Ahmed



* 1st INTERNATIONAL CONFERENCE ON INFORMATION AND
COMMUNICATION TECHNOLOGIES

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INTRODUCTION

Introduction

THE EVENT

IS1 International Conference on Information and Communication Technology (ICICT 2005) Karachi, Pakistan, held on 27th_28th August 2005 at Hotel Pearl Continental, Karachi was a broad based, multi-topic, fully reviewed conference on Information and Communications Technology. This activity aimed to capture the new wealth of research initiated by scholars inducted by the Higher Education Commission of Pakistan, and seeks to enhance the interaction of local and overseas scientists and attempts to foster tangible focus on problems related to the socio economic uplift of the nation. This conference was the only forum of its kind in Pakistan that brought together technical and business related issues pertaining to Information and Communications Technology.

The major areas of interest at the 151 International Conference on Information and Communications Technology were:

1. Software Engineering (SE)
2. Management Information Systems (MIS)
3. Database and Warehousing (DB-DW)
4. Artificial Intelligence (AI)
5. Modeling, forecasting and Simulation (MFS)
6. Algorithms, Tools and Applications (ALGO)
7. Computer Graphics and Interactive Systems (CG-IS)
8. Operating Systems (OS)
9. Quality and Reliability of Software Systems (QRSS)
10. Network Security (NS)
11. Wireless Networks (WN)
12. Telecommunications and Telecommunication Regulations (TTR)
13. Grid Computing (GC)
14. Web Services (WS)
15. Real Time Systems Engineering (RTSE)
16. Quality and Reliability of Hardware Systems (QRHS)
17. Computer Science & Engineering - Education issues (CSE-EDU)
18. Standards for Computer Science and Engineering (STD-CSE)
19. Economic Impacts of Computerization (EI C)
20. Managerial Issues in Computerization (MIC)
21. Application of Computing in Accounting and Finance (ACAF)
22. Storage Area Networks (SAN)
23. Information Security (IS)
24. Localization (LOC)

Academicians, Researchers and Professionals active in above areas of research were invited to submit technical papers.

EVENT ORGANIZER

The Institute of Business Administration (IBA), being the premier business School in Pakistan, is the oldest graduate business school outside North America and was established in April 1955 in collaboration with the Wharton School of Finance and Commerce, University of Pennsylvania. Later, it was associated with the University of Southern California. In 1994 IBA's status was elevated to a degree awarding institution.

The ISA Center for Computer Studies (CCS) was established in 1983, with the collaboration of ISM (Pakistan). The CCS offers four-year BBA (MIS) and BCS (Software Engineering) programs; a two-year morning MBA (MIS) program and an evening MBA (MIS) degree program. In addition the CCS has plans for offering an MS/PhD programs and Executive Education courses in fall 2005.

The year 2005 is the 50th anniversary of the inception of IBA. CCS is the principal organizer of the ICICT2005.

ISA's mission is to produce leaders in the fields of Management Information Systems (MIS), Computer Science & Engineering (CS&E) and Information and Communication Technologies (ICT) for the 21st century who can face the ever-changing requirements of modern digital economies with vision, courage and competence.

Conference Committees

Conference Chair:

- Professor Danishmand Dean and Director (IBA)

Distinguished/Key Note Speakers:

- Professor Akhtar Kalam, Victoria University, Australia
- Professor Ahmed A. Zeki, International Islamic University, Malaysia
- Professor Abdul Raouf, University of Management and Technology, Pakistan
- Dr. Xiangjian He, University of Technology, Australia
- Dr. Beatriz de la Iglesia, University of East Anglia, UK
- Dr. Javed I. Khan, Kent University, Ohio, USA
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General Conference Committee:

	Designation	Affiliation
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Ms. Zareen Sharf	Lecturer	IBA, Karachi

Conference Sponsors

The following were the main sponsors of the event:

1. Institute of Business Administration (IBA)
2. Institute of Electrical and Electronics Engineering (IEEE)
3. Intel Corporation (INTEL)
4. Microsoft Corporation (MICROSOFT)
5. Pakistan Telecommunication Company Limited (PTCL)
6. Pakistan International Airlines (PIA)
7. Inbox Corporation (INBOX)
8. Association of Computing Machinery (ACM)
9. Higher Education Commission, Pakistan (HEC)
10. British Council

MESSAGES

Director's Message

It gives me immense pleasure in presenting the Proceedings of the 1st International Conference on Information and Communications Technologies, Pakistan. This proceeding encompasses within it the original research papers submitted by over a hundred researchers from Pakistan, as well as from India, Australia, Malaysia, the United Kingdom and the United States. The papers accepted were peer reviewed by a panel of eminent faculty members after which a total of approximately 70 papers were accepted for publication in the form of these proceedings. Most of these papers were presented at the ICICT chaired sessions while the remaining were presented as poster papers.

The Institute of Business Administration (IBA) is the oldest graduate business school outside North America and was established in April 1955 in collaboration with the Wharton School of Finance and Commerce, University of Pennsylvania. Later, it was associated with the University of Southern California. In 1994 IBA's status was elevated to a degree awarding institution. The year 2005 marks the 50th anniversary of the inception of IBA.

The IBA Center for Computer Studies (CCS) was established in 1983, with the collaboration of IBM (Pakistan). The IBA CCS has organized the ICICT 2005 as a broad based, multi-topic, fully reviewed conference on Information and Communications Technology. This Conference aims to capture the new wealth of research initiated by scholars inducted by the Higher Education Commission of Pakistan, and seeks to enhance the interaction of local and overseas scientists and attempts to foster tangible focus on problems related to the socio economic uplift of the nation. This conference is the only forum of its kind in Pakistan that brings together technical and business related issues pertaining to Information and Communications Technology.

We live in a world that has become increasingly competitive. Today's business world demands that only the best can survive. Business and technology today are inextricably interwoven to provide the best possible products and services and achieve the highest possible levels of customer satisfaction.

The IBA has risen to this national challenge by providing its graduates with the best possible combination of business and technological skills and knowledge through a combination of its MBA, BBA MIS and BCS degrees. The recently launched PhD program in the fields of MIS, ICT and Computer Science and Engineering addresses the national shortage of qualified PhDs in this area that is critical for our nation's progress.

The ICICT 2005 Conference attempts to bring together the business and technology researchers to face the modern challenges of a complex society which requires innovative solutions to increasingly complex problems. It is essential that we face the problems of today, not in isolation, but by putting together the creative minds of researchers and industrialists, professionals and academicians in industry/academia partnerships. The ICICT2005 attempts to do precisely that in an atmosphere charged with creativity and business acumen.

I would like to take this opportunity to thank all of the researchers, industrialists, IT professionals and businessmen who have contributed to making this conference a success via their active participation and paper submissions. Finally, I would especially like to thank our Chief Guest for having taken the time out of his busy schedule to grace the Conference with his presence, and to make this Conference a resounding success.

Professor Danishmand
Dean and Director of IBA

Chairman CCS Message

The IBA Center for Computer Studies (CCS) was established in 1983, with the collaboration of IBM (Pakistan). The CCS offers four-year BBA (MIS) and BCS (Software Engineering) programs~ a two-year morning MBA MIS program and an evening MBA MIS degree program. In addition the CCS is now offering a PhD program in the fields of Management Information Systems (MIS), Computer Science & Engineering (CS&E) and Information and Communication Technologies (ICT).

The mission of the IBA CCS is to produce leaders in the fields of MIS, Computer Science & Engineering (CS&E) and ICT for the 21st century who can face the ever-changing requirements of modern digital economies with vision, courage and competence.

As we are all aware, the world today has become a global village in which every nation must compete or be left behind. Research in this immensely important field of ICT is essential for every progressive nation. I believe Pakistan has immense potential and talent to compete with any nation in the world, if it can bring its research community to rise to the challenge of modern business and industry. For this it is absolutely essential to have Conferences, such as this arranged by the IBA and its sponsors, including PTCL, Microsoft, Intel, Inbox, and the HEC, to address the modern day research issues.

However Research, to be meaningful and successful, must not be carried out in Laboratories alone, but must be thought out, discussed and proposed through a series of discussions and debates between researchers and industry~ The research talent of the academia must understand and find solutions to the needs of the modern day business and industry. It is only through this intense process can a nation discover its own talent for its indigenous problems.

We are proud of the initiative taken by the IBA CCS and its partners in initiating the 1st International Conference on ICT (ICICT 2005) that has brought together such a wide array of delegates from both within the country, the region and the west. I am certain that this Conference will generate an unprecedented level of intellectual activity and will go a long way in creating an awareness of Pakistan in the International research community that both will motivate the Research community of Pakistan and bring forth its hidden talents.

I would like to thank all the researchers including faculty members, students, and professionals from within Pakistan and around the globe, who have contributed to making this Conference a success by submitted their original research papers and those who have contributed with their key note and invited speeches. In particular I am deeply indebted to Dr. Wasim Khan, HEC Professor and Coordinator ICICT 2005, who through his perseverance and strength of commitment has converted this conference fro~ an idea into reality.

Dr. Sayeed Ghani
Chairman, CCS, IBA