AMJAD UMAR, Ph.D.

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Dr. Amjad Umar is the Founder and Professor of ISEM (Information Systems Engineering and Management) program at Harrisburg University of Science and Technology (HU). Currently he is Chief Architect of a United Nations Partnership (ICT4SIDS) that is focusing on using the latest digital innovations to help the Small Islands and Developing States (SIDS) and Least Developed Countries (LDCs). He is also a Fulbright Senior Specialist on ICT (Information and Communication Technologies) and Founder/CEO of a startup that has developed an e-Factory for rapid digital transformation and economic development. He holds an M.S. in Computer, Information and Control Engineering and a Ph,D. in Information Systems Engineering (Industrial and Operations Engineering Department), both from the University of Michigan.

As a Professor and Director of ISEM Program, he teaches graduate level courses in Strategic Planning for Digital Transformation, IoTs and Industry 4.0, Architectures and Integration of Digital Enterprises, and Smart Cities. He was previously an Adjunct Professor of Telecommunications and Systems Engineering at the University of Pennsylvania for 15 years and the Fordham Graduate School of Business for 5 years. Under his supervision, the ISEM Program at HU has grown into a powerful department that offers MS and PhD degrees in ISEM with specializations in Smart Enterprises, AI, Blockchains, Techpreneurship, Digital Health, Industry 4.0, and Next Generation Technologies. The HU ISEM Program is rated among the top 10 universities out of 400 universities in USA that offer Information Systems programs.

His 20+ years of industry experience includes senior management and consulting/advisory positions with governments and industries around the globe. As a Director of Research at Bellcore (part of the Bell Labs system) for 10 years, he supervised large scale projects in IT planning, enterprise architectures and integration, mobile computing, information security, and collaborative systems. His startup specializes in digital innovations for the underserved populations and small to medium businesses. He has consulted with global telecom organizations, US Department of Navy, US Army Research Labs, Frost and Sullivan (England), Toyota Corp., Society of Manufacturing Engineers, healthcare organizations, professional services organizations, and academic institutions in England, Singapore, China, Italy, New Zealand, South Africa, Argentina, Canada and more than 30 developing countries. He has written eight books and more than 60 research papers in his areas of specialization. Due to his assignments with three UN initiatives as Chief Architect and Initiative Director since 2007, he has worked with more than 40 developing countries.

EDUCATION

University of Michigan Ph.D Information Systems Engineering (Industrial and Operations Engineering Department), Thesis: Distributed Systems Resource Allocations

University of Michigan M.S. (Computer & Communication Engineering)

Management Training: Bellcore Executive Training Program (an intensive one year program with concentration on business strategy, technology management, leadership and marketing)

HIGHLIGHTS OF PROFESSIONAL WORK

POLICIES RELATED: 10+ years of experience (since 2008) with three United Nations (UN) Projects that regularly required policy-related research, analysis, development and reporting for SIDS & LDCs. By engaging my startup, I developed a computer aided planning tool in 2010 to support UN MDGs (Millennium Development Goals) for developing countries. This tool used AI and other digital technologies in making effective and efficient strategies, policies and projects for digital development. The MDG eNabler was used by a large number of developing countries and led to the development of a more powerful SDG focused tool, called SPACE (Strategic Planning, Architectures, Controls and Education), that is being used around the globe by developing counties, small to medium businesses and educational institutions. See an article on SPACE (http://www.ict4sids.com/newdoc/IJEAS-SPACE4SDGs-Published-Final.pdf). A distinguishing feature of these tools is that the recommendations could be adapted to a variety of local conditions and circumstances. These tools reflect my basic belief that the policies need to be researched and analysed first but then *implemented* into working solutions that can be used by decision makers globally. SPACE has now evolved into a powerful e-Factory for Rapid Digital Transformation and Economic Development.

I also worked on Telecom Policy issues when I was at Bellcore (1989-2003) but am really enjoying working with UN on digital policies for SIDS/LDCs and have utilized the United Nations Public Administration Network (UNPAN) Policy Advisor to develop an IS Security Policy Advisor for SPACE. Recently we have added a Digital Transformation Advisor to SPACE that directly supports the OECD "Going Digital: Shaping Policies, Improving Lives" framework and its seven policy dimensions (i.e., Access, Use, Innovation, Jobs, Society, Trust, and Market Openness). We are currently exploring B2B Collaboration Policies and their impact on trade in developing countries. Of special interest are policies that impact 3D printer use in developing countries and their impact on industrialization. SPACE should be able to recommend public-private partnerships that could allow a 3D printer in Honiara (Solomons) to produce artifacts being designed in Sydney, as an instance.

INDUSTRY 4.0 TECHNOLOGIES AND VALUE CHAINS RELATED: I have in depth knowledge of Industry 4.0 technologies and industry impacts. I also have extensive background in Industry 4.0 technologies and value chains and their impact on digital industrial development in LDCs & SIDS. Specifically:

- I received a PhD from the University of Michigan (1984) in Industrial and Operations Engineering with a major in Information Systems Engineering. My PhD thesis is on optimal resource allocations in distributed networks.
- I am thoroughly knowledgeable about the digital technologies landscape (e.g., AI, Semantic Web, IoTs, Cyber-Physical Systems, Mobile Computing and 5G wireless, Big Data and Data Analytics and Cloud Computing) that is at the foundation of Industry 4.0.
- I have recently developed a graduate level course on IoTs and Industry4.0 at Harrisburg University and am co-teaching it with another colleague.
- I have recently published a Working Paper on "Computer Aided Strategic Planning for Industry 4.0" http://www.ict4sids.com/newdoc/eFactory-4-Manufacturing4.0-V0.pdf, that explicates my methodology in this broad area.

STAKEHOLDER RELATIONSHIPS: I am able to constructively and tactfully engage with senior stakeholders and policymakers to solicit relevant information, demonstrated by relevant experience. This is because I have:

- Worked on more than 60 projects in more than 40 countries since 2010
- 20+ years of experience in managing industry projects, Technical leadership, visionary applied research, IT management, Aligning IT to business, Securing R&D funding, Technology transfer, Managed R&D groups (10 to 15 researchers) and operational staff (30 to 40 professional plus administrative staff).
- Extensive consulting assignments with government agencies, Telcos, manufacturing, healthcare, educational and professional services organizations in England, Singapore, China, Argentina, Italy, South Africa and Canada.
- Extensive experience of presentations in international conferences and leading/teaching industrial seminars for professional audiences. Sample invited presentations are: more than 40 UN Conferences since 2010, IEEE International Technology Management Conferences (June2012 and June 2016), UN-Least-Developed Countries Conf (Istanbul, 2011), UN-ITU Annual Meeting (Geneva, May 2010), Gulf Countries Council (GCC) Meeting (Riyadh, June 2010), and Auckland University Seminar on Next Generation Networks (March 2008).

MULTIPLE SECTORS KNOWLEDGE: I have experience working with government officials and stakeholders from academia, private sector and civil society. Examples are:

- Several years (10+) of Industry experience. First as Director of a Regional Technology & Computing Network (State of Michigan) in 1980s that involved working directly with state agencies (health, education, public safety, public welfare and others) in Michigan. Then as Director of Research for Bellcore (part of Bell Labs) for 13 years that involved working with large scale telecom providers around the globe and other business and research partners such as Toyota, US Dept of Navy, Army and DARPA.

DETAILED INFORMATION (FOR REFERENCE)

PROFESSIONAL ENGAGEMENTS (Reverse Chronological)

- Director and Professor of Information Systems Engineering and Management (ISEM) at Harrisburg University of Science and Technology (since 2008). Established a highly successful graduate program in ICT (Information and Communication Technologies) leadership at a brand new university with focus on strategic ICT planning, enterprise architectures and integration, business intelligence and business analytics for the underserved sectors. Supervising graduate research in Next Generation Digital Enterprises.
- Chief Architect and Director of UN Initiatives and Partnerships (since 2009); Chief Architect of UN eNabler for Developing Countries (2008 to 2012), Execuive Advisor of UN Infopoverty World Conference (2012 to 2015), Chief Architect and Director of ICT4SIDS Partnership (2015 to Now)
- CEO (since June 2006) of an international research and consulting firm with offices in 6 countries that specializes in digital transformations, next generation of digital enterprises and computer aided strategic planning. Note: This started as a "hobby" but has now grown into a very successful company with products that are being used by the United Nations, IBM and large scale telecommunications providers. Previously, formed a company on CIM with a friend and sold it around 2005.
- Adjunct Professor of Systems Engineering and Telecommunications, University of Pennsylvania (since Fall 2000). Regularly teaching two graduate level Telecom courses: i) Wireless Networks (every spring) and ii) Web Services and Service Oriented Architectures (every fall). Both courses require extensive updates.
- Bellcore (Part of Bell Labs) -- (1989 to 2003). a) Director of Distributed Systems Planning and Integration Research (1995 to 2003), Responsible for supervision of R&D and consulting activities of 15 Research Scientists and consultants. Worked with RBOCs (Regional Bell Operating Companies) and Telcos around the globe on various technology consultation assignments involving NGNs, mobile systems, web technologies, security, integration, and e-business. Managed $5million annual research program funded by DARPA, Telecom industry research grants, and Bellcore funded R&D. b)Senior Research Scientist (1989-1995): led research on telecom standards & systems, emerging IT infrastructure for telcos, and middleware for advanced data networks.
- Professor of Information and Communication Systems -- Fordham Graduate School of Business (Fall 2002 to Fall 2008). Developed and taught MBA courses in IT for Business, eBussiness strategies, networks and distributed systems, enterprise architectures and integration, information security and auditing, e-business technologies.
- University of Michigan (1985 to 1989): As an Associate Professor of Computer Information Systems (Dearborn Campus) and Adjunct Professor of Engineering (Ann Arbor Campus) taught/developed courses in computing networks, distributed systems, database systems, expert systems, computing architecture, software engineering, systems analysis and design
- Regional Technology & Computing Network (State of Michigan). Director of Network Services (from 1980 to 1985) -- responsible for the overall administration of a government computing center consisting of about 40 professionals, a network of 200 sites, two large scale IBM mainframes, and over 10,000 workstations located in

different parts of the State of Michigan. Managed the growth of the network from 20 sites to 200 sites.

- Short-term consulting and academic international assignments (1980-now). This included a) teaching assignments at Peking University (Summer 1985), Paduva University (Italy, 2000), and Univ of Johannesburg (South Africa, 2001); and b) industrial consulting assignments with telecom companies (Argentenian Telecom, Canadian telecom, Italian Telecom, Swiss Telecom, South African Telecom), manufacturing firms (Ford Motors, Siemens) and professional services organizations (Frost and Sullivan, England) and GMG Corporation (Singapore).

AWARDS AND PRPFESSIONAL RECOGNITIONS

- Senior Consultant to the British Commonwealth on Industry4.0 Trends (2021)
- Senior Advisor to the United Nations "ICT for Developing Countries"' initiative. (2007-2010) and then Chief Architect of the UN eNabler for ICTD Project (2010-now)
- Frequently invited as a subject matter expert and panelist by the United Nations. Most recent appearances are in the UNIDO (United Nations Industrial Development Organization) Panel on Jan 15, 2021, and UN CSU (UN Consortium for Sustainable Urbanization) on Jan 21, 2021.
- Fulbright Senior Specialist appointment with the US Council for International Exchange of Scholars to provide IT consultation to overseas institutions (2007-now)
- ISEM Program at HU, founded and headed since 2010, rated among top 10 IS programs among 400 US IS programs (ahead of well established schools such as UC Berkley, NYU, Univ of Illinois, and many more)
- IBM Faculty Award for excellent course proposal on "Architectures for Globally Integrated Enterprises" (2007).
- Featured on cover story, IBM Database Magazine, special issue on XML and Next Generation Systems, Sept. 2008 .
- Nominated to be on Academic Advisory Panel to evaluate ICT programs in New Zealand (August 2008)
- Nominated by three New Zealand Universities (University of Otago, University of Auckland, Auckland University of Technology) to help develop graduate programs in next generation systems, mobile computing, and enterprise architectures.
- Distinguished Faculty Award for excellence in teaching & service, University of Michigan (1989)
- Rated as one of the top Professors at Fordham Graduate School of Business (rated 5/5 by students in almost all courses). Received Outstanding Teacher Awards, 2003-2005
- Received five excellent team contribution awards at Bellcore and rated as outstanding performer (top 5%) at Bellcore for 10 years
- Selected as National Lecturer on Networks and Databases, Society of Manufacturing Engineers (1986-1989)
- Bellcore representative to standards bodies such as the ANSA Consortium (Cambridge, England), World Wide Web Consortium (W3C) and Object Management Group (OMG)
- Invited to be on editorial boards of 3 academic journals, program committees of 6 international academic conferences and numerous book/monograph authorships

UNIVERSITY COURSES TAUGHT

SIMMARY OF GRADUATE COURSES TAUGHT (Most Frequently and Recently):

- Strategic planning for Digital Transformation (Harrisburg University), since 2010
- Enterprise Architectures and Integration (Harrisburg University), since 2010
- Smart Cities and Strategic Intelligence (Harrisburg University), since Jan 2020
- IoTs and Industry 4.0 (Harrisburg University), since Sept 2020
- Web Technologies, Architectures, and Integration (Univ. of Pennsylvania). Special Topics Course in TCOM, Every Fall since 2000
- Mobile computing and wireless communications (Univ of Pennsylvania)- Every spring, since 2000

- Artificial Intelligence and Business Intelligence" (Harrisburg Univ) – since May 2011)
- eBusiness Strategies & Technologies (Fordham Schools of Business) – 2003-2007
- Enterprise Architectures & Integration (Fordham Grad School of Business) – 2003-2007
- Information Security, Privacy and Audits for Managers (Fordham Grad School of Business) – 2003-2007
- Information Systems Analysis, Design, and Management: Taught at Fordham Grad School of Business (since 2003), Rutgers School of Business (1998-2003), University of Michigan- School of Engg and School of Business (1984-1989) :
- Decision Support and Expert Systems, Data Mining: Fordham Grad school of Business (1996-2000), Rutgers School of Business (2000-2002)
- Distributed computing/distributed systems: University of Michigan (school of Business plus Engineering), Stevens Institute of Technology (School of Management), Fordham (School of Business) – have taught variations of this course since 1984 at graduate level (almost 10 times)
- Communication networks: University of Michigan (school of Business plus Engineering), Stevens Institute of Technology (School of Management), Fordham (School of Business) – have taught variations of this course since 1984 at graduate level (almost 20 times)
- Software Engineering (Object Oriented Systems. Compilers Theory) and Programming Courses (Java, C, C++, Pascal, Web programming, database programming): taught at Univ. of Michigan (1985-89), Rutgers (2000-2005), and Peking University (Summer- 1985)

INDUSTRIAL TRAINING AND CONSULTING ASSIGNMENTS (SAMPLES)

- More than 25 invited presentations at UN HQ in NYC, Geneva and UN-Sponsored Conferences in more than 15 locations on "Computer Aided Strategic Planning, Architecture, Controls, and Education (SPACE)" since Fall 2010.
- Variations of "Strategic IT Planning, Integration, Security & Administration in the Digital Age", industrial seminars taught more than 20 times through Fordham Graduate School of Business, American Management Association, and Bellcore Corporate Training Center.
- "Information Engineering", Taught for the GMG Corporation, Singapore, 1984.
- Project manager: Toyota Advanced Ebusiness Services (Toyota funded project) -2000-2002.
- Principal investigator: Intrusion tolerance in middleware services (DARPA funded project on Intrusion Tolerant Systems) 2000 -2002
- Research manager and principal investigator: Information distribution in highly mobile environments, part of the ATIRP (Advanced Telecommunications/Information Research Program), funded by the US Army Research Labs (1998-2002)
- Research Manager: Next Generation Network Developments and Implications for Telcos (Bellcore funded) – 2001-2002
- Lead investigator: Middleware for Advanced Data Networks (Funded by US Regional Bell Operating Companies, Bell Canada, Swedish Telecom, Korean Telecom, Argentina Telecom, South African Telecom) – 1997-2002.
- Consultant: Italian Ministry of Finance on Data Quality and Data Warehousing Issues (1999)
- Invited Expert: State Technology Commission, People Republic of China (summer 1985) on information systems engineering
- Consultant: GMG Corporation, Singapore (summer 1984) on information systems engineering

BOOKS PUBLISHED

- Umar, A., Computer Aided Strategic Planning of Digital Enterprises", Ingram, June 2020 (available as a coursepack through Paypal), Second Edition, planned Dec 2022
- Umar, A., Computer Aided Architectures and Integration of Smart Enterprises", Ingram, Target, Sept 2023 (available as a coursepack through Paypal)

- Umar, A., 'Enterprise Architectures and Integration Using SOA", NGE Solutions, January 2010
- Umar, A., 'Mobile Computing and Wireless Communications: Applications, Networks, Platforms, Security, and Architectures", May 2004. (next edition under prep)
- Umar, A., 'Information Security and Auditing in the Digital Age', NGE Solutions, August 2004
- Umar, A., 'Third Generation Distributed Computing", NGE Solutions, January 2008 (2nd edition)
- Umar, A., 'e-Business and Distributed Systems Handbook: From Strategies to Working Solutions', NGE Solutions, March 2003, published as eight modules (Overview Module, Applications Module, Architecture Module, Integration Module, Management Module, Networks Module, Middleware Module, Platforms Module,
- Umar, A., 'Distributed Computing and Client/Server Systems', Prentice Hall, 1993 (translated in 5 languages)
- Umar, A, "Object-Oriented Client/Server Internet Environments", Prentice Hall, 1997
- Umar, A., "Application (Re)Engineering: Building Web-based Applications and Dealing with Legacies", Prentice Hall, 1997

RESEARCH JOURNAL PAPERS PUBLISHED (SELECTED)

- Umar, A., "Computer Aided Strategic Planning for the United Nations Sustianable Development Goals (SDGs)", International Journal of Engineering and Applied Sciences, Dec 2017
- Umar, A., and Zordan, A., "Enterprise Ontologies for Planning and Integration of eBusiness", *IEEE Transactions on Engineering Management*, May 2009, Vol. 56, No. 2, pp. 352-371.
- Umar, A. and Zordan, A., "Integration Versus Migration Issues in Service-Oriented Architectures (SOA)", *Journal of Systems and Software*, Vol. 28, 2009, pp. 448-462.
- Umar, A. and Subrahmann, "Ontology-based Network Planning", *International Journal of Business Data Communications*, Sept 2008. .
- Umar, A., "Intelligent Decision Support for Architecture and Integration of Next Generation Enterprises", *Infomatica Journal*, V. 31, 2007, pp. 141-150
- Raghupathi, W. and Umar, A., "Exploring an MDA Approach to Healthcare Information Systems Development", *International Journal of Medical Informatics*, Vol. 77, No. 5, 2008, pp. 305-314.
- Raghupathi, W. and Umar, A., "An Integrated Digital Health Systems Design: A Service-Oriented Soft Systems Methodology", International Journal of Information Technologies and Systems Approach, 2(2), pp. 15-34, July-December 2009.
- Umar, A., "IT Infrastructure to Enable Next Generation Enterprises', *ISF (Information Systems Frontiers) Journal*, Volume 7, Number 3, July 2005, pp: 217 - 256
- Umar, A., "The Emerging Role of Web for Enterprise Applications and ASPs". Invited Paper, *Special Annual Issue of IEEE on "Evolution of Internet Technologies towards the Business Environment",* Vol. 92, No. 9, Sept. 2004
- Umar, A., and Caruso, F., "Architectures that Survive Technological and Business Turbulances", *ISF Journal*, Vol. 6, No. 1, March 2004
- Zbib, R., Ghosh, A., Anjum, F., and Umar, A., "Intrusion Tolerance in Distributed Middleware", *Information Systems Frontiers Journal*, Vol. 6, No. 1, March 2004
- Moyer, S. and Umar, A., "Software Architectures for Next Generation Networks", *IEEE Communications,* January 2001
- Umar, A., Ness, L., and Karabatis, G., "Data Reconciliation in Large Scale Heterogeneous Systems*", Information Systems Frontiers Journal*, Sept. 1999
- Umar, A., Krackenberg, A, and Lyons, T., 'Organizational Design for Computer Integrated Manufacturing', *Information and Management Journal*, No. 20, 1991, pp. 355-362
- Umar, A., 'Computer Communication Platform Planning for Integrated Environments', *Journal of Data and Computer Communications*, Sept. 1990
- Umar, A., and Teichrowe, D., 'Pragmatic Issues in Database Conversions', *Information & Management Journal*, No. 19, 1990

REFEREED CONFERENCE PAPERS PUBLISHED (FEW OUT OF 45)

- Umar, A. "Metaverse for Public Service – An Exploratory Study", Published, IEEE Conf on Robotics and AI, June 2022
- Umar, A. "Metaverse for SDGs – An Exploratory Study", UN High Level Policy Conference, Paper submitted (Invited), March 29, 2022
- Umar, A. "A Digital Transformation Lab for Developing Countries and Small to Medium Enterprises", IEEE Technology and Engineering Management (TEM), March 2022
- Umar, A. "A Digital Transformation Lab for Developing Countries and Small to Medium Enterprises", IEEE Technology and Engineering Management (TEM), March 2022
- Umar, A., "A Software Factory in the Cloud for Pandemics and other Disasters – Initial Results and Future Directions", IEEE Cloud Summit, Oct 2020
- Cosgun, O. and Umar, A., "Smart Resource Allocation Advisor in the Cloud for COVID-19 and Other Pandemics", IEEE Cloud Summit, Oct 2020
- Umar, A., "Smart Collaborating Hubs and a Smart Global Village – An Alternative Perspective on Smart Cities", IEEE Conference on Technology and Engineering Management, June 2018.
- Umar, A., and Darr, E., "Graduate Studies in Information Systems Engineering and Management (ISEM) for Digital Enterprises", IEEE Conference on Technology and Engineering Management, June 2018.
- Javed, A. and Umar, A., "Pattern Driven Multi-Domain Enterprise Models for Enterprise Architecture and Information System Projects", International Conference on Project Management, CENTERIS, October 7-9, 2015
- Umar, A., "Smart Decision Support for Smart Healthcare", Published in IEEE International Technology Management Conference, Chicago, June 2014
- Umar, A., "Computer Aided Consulting: An Innovative Approach for ICT Services in Developing Countries", Published in IEEE International Technology Management Conference, Hague. Netherland, June 2013
- Umar, A., "Computer Aided Strategic Planning, Engineering and Management for Global eServices", Published in IEEE International Technology Management Conference, Dallas, Texas, USA, June 2012
- Umar, A. and Ivanoski, I,"Computer Aided Strategic Planning for eGovernment Agility", Invited Paper, AAAI Symposium on "AI and Business Agility", Stanford University, March 2011
- Javed, A., and Umar, A., 'Network Security Design for the Next Generation Enterprises', eSociety 2006 Proceedings, July 2006
- Khalid, K. and Umar, A., 'IT Planning for the Next Generation Enterprises', eSociety 2006 proceedings, July 2006
- Umar, A., "Decision Support for Enterprise Integration", EDOC (Enterprise Distributed Object Computing) Conference, Enschede, Holland, Sept. 2005
- Umar, A., "IT Planning for Small to Medium Businesses", IRMA Conference, San Diego, May 2005
- Umar, A., Anjum, F., and Zbib, R., "Intrusion Tolerant Middleware", DARPA Information Security Conference and Expo (DISCEX), June 2001
- Missier, P. and Umar, A., "Representing Knowledge about Modern Software Architectures", IFIP international conference on Knowledge systems (April 2001)
- Anjum, F. and Umar, A., "Agent-based Intrusion Tolerance using Fragmentation-Replication-scattering Techniques", IEEE WCNC (wireles computing network conference), Sept 2000.

MAJOR INTERNTIONAL PRESENTATIONS (recent selection from a very long list)

- Umar, A., "Computer Aided Planning for Lake Chad Basin Region", Special Invited Guest Speaker, UN 3rd International Conference on Sustainable Development Goals Implementation in the Lake Chad Basin Region, UN HQ, NYC, August 5, 2019.
- Umar, A., "Computer Aided Planning for Smart Cities and Towns", Smart Cities Summit, April 18, 2017
- Umar, A., "Computer Aided Advising for UN Sustainable Development Goals (SDGs)", Lead Presentation, UN Conference on Small Islands and Developing States, Bahamas, Feb 21-23, 2017.
- Umar, A. and Kennerson, J., "Computer Aided Planning for Developing Countries: Case Study -- World Hypertension Telemedicine Hub for Haiti", UN Partnership Conference, July 18, 2016
- Umar, A., Haye, P and Mwaipopo, J., "Computer Aided Planning for Rapid Adoption of Samoa Pathway and UN Sustainable Development Goals (SDGs): Case Studies –

Jamaica and Tanzania", UN Infopoverty World Conference 2016, April 14, 2016

- Umar, A.,"ICT4SIDS Overview: Using ICT Hubs for Rapid Adoption of UN Post 2015 Agenda", UN-SIDS Conference, Aruba, March 22, 2016.
- Umar, A., "ICT4SIDS Vision: ICT Hubs for Rapid Adoption of the UN Agenda", UN Infopoverty World Conference 2015, April 10, 2015
- Umar, A., "Computer Aided Consulting for Developing Countries", Presentation at the IEEE International Technology Management Conference, Hague, June 2013.
- Umar, A., "Computer Aided Strategic Planning, Engineering and Management for Global eServices", Presentation at the IEEE International Technology Management Conference, Dallas, Texas, USA, June 2012
- Umar, A., "Computer Aided Planning for Developing Countries", UN Conference, Istanbul, June 8, 2012

SAMPLE INDUSTRIAL RESEARCH REPORTS (COULD NOT BE PUBLISHED PUBLICLY DUE TO PROPRIETARY RESTRICTIONS)

Wrote over 30 high quality research reports while at Bellcore (1989-2003). These reports, many of them journal quality, could not be published due to proprietary restrictions imposed by the funding bodies:

- Telecom Funded Research Reports (1991-2003): Wrote 15+ research reports on next generation telcos, next generation networks, next generation OSSs, telecom supply chains, large scale data warehousing and data quality issues, emerging middleware services for the telecom industry, etc.
- Toyota Corporation Research Reports (2000 to 2002): Wrote 3 research and technical feasibility reports on developing a futuristic customer contact center
- DARPA Reports (Jan 2000 to Sept 2002): Wrote 6 DARPA funded research reports evaluating different aspects of security and intrusion tolerance of middleware services by using attack trees and security patterns for risk analysis & mitigation
- US Army Research Reports (1998-2001): wrote 11 technical research reports on mobile computing applications and middleware support for battlefield environments

Specifically, results from the following research projects that I led (as a Principal Investigator) could not be published without extensive clearances:

- Very large scale application engineering and integration (Externally and internally funded project). Research issue: How can applications be engineered/re-engineered in highly competitive business settings.
- eBusiness for Automotive Industry (funded by Toyota). Research Issue: Where and how ebusiness can be used in automotive industries.
- Mobile computing platforms for emerging mobile applications (internally funded): Research issue: How can mobile applications be developed and integrated quickly.
- Large scale knowledge management systems to support Ecommerce (internally funded). Research Issue: How can knowledge management be used to automate ecommerce decisions.
- Information distribution in highly mobile environments (US Army Funded Research): Research Issue: How to distribute information reliably and efficiently in battlefield environments