

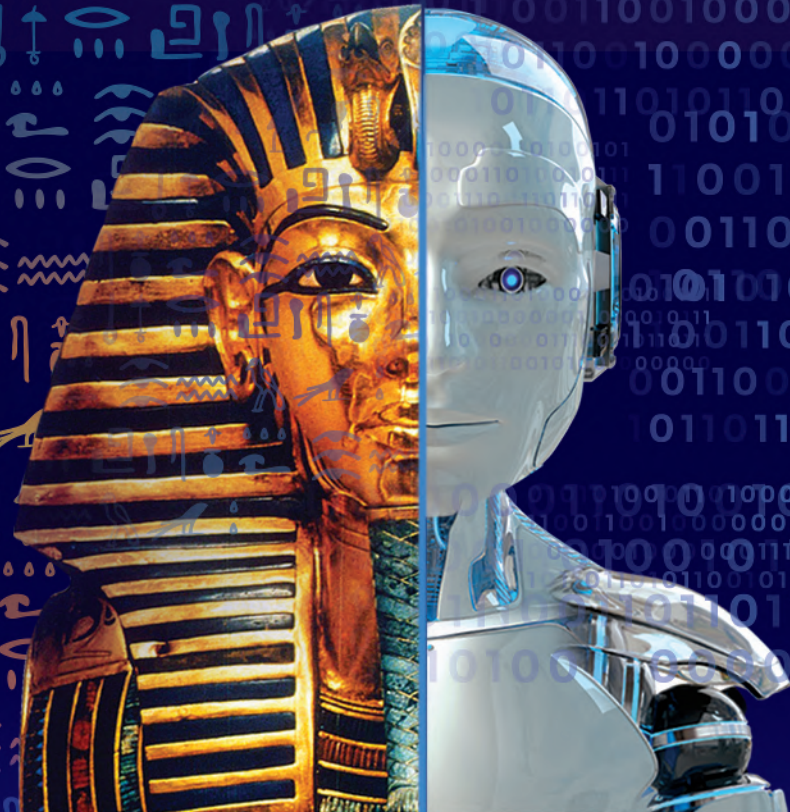
30TH INTERNATIONAL
Conference on
MANAGEMENT
OF TECHNOLOGY

IAMOT
2021

MOT

**FOR THE WORLD
OF THE FUTURE**

19 – 23 September, 2021
Nile University, Egypt



IAMOT 2021 PROGRAM OVERVIEW

DAY 0: SUNDAY, 19 September 2021

TUTORIALS, WORKSHOPS AND PROFESSIONAL MEETINGS

1:00pm - 2:30pm
Cairo Local Time
(GMT +2)

Workshop: Design Thinking (Part 1)
Leader: [Nezar Sami](#)

2:30pm - 3:00pm

Break (Broadcast Promotion Materials)

3:00pm - 4:30pm
Cairo Local Time
(GMT +2)

Workshop: Design Thinking (Part 2)
Leader: [Nezar Sami](#)

PROFESSIONAL MEETINGS

5:00pm - 7:00pm
Cairo Local Time
(GMT +2)

IAMOT BOAD OF DIRECTORS AND EXECUTIVE COUNCIL MEETING
(Closed Meeting)

DAY 1: MONDAY, 20 September 2021

2:00pm

OFFICIAL OPENING OF THE CONFERENCE



MONDAY
PERIOD 1
2:00pm - 3:30pm
Cairo Local Time
(GMT +2)

Room: Webinar
Opening Remarks - Dr. [Osman Ahmed](#), President IAMOT
Welcoming Remarks - Dr. [Tarek Khalil](#), Conference Chair and Founder of IAMOT
Keynote Address
H.E. Dr. [Amr Talaat](#)
Minister of Information and Communication Technology - Arab Republic of Egypt

3:30 pm - 4:00 pm

Break (Broadcast Promotion Materials)

PARALLEL SESSIONS

MONDAY
PERIOD 2
4:00pm - 6:00pm
Cairo Local Time
(GMT +2)

Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
R&D, Innovation and Entrepreneurship	MOT for Competitiveness & Resilience	Technology Foresight and Recasting	MOT in the Industry and Service Sectors (1)	MOT in the Industry and Service Sectors (2)	Education, Learning and Development
Papers: 9, 19, 21, 40, 42	Papers: 5, 8, 16, 36, 43	Papers: 28, 57, 122, 177, 197	Papers: 18, 22, 23, 31, 33, 35, 94	Papers: 34, 39, 49, 51, 52, 62	Papers: 93, 114, 134, 151, 182, 191
Chair: Osman Ahmed Co-Chair: Menna Kaoud	Chair: John O. Aje Co-Chair: Amr Ragab	Chair: Gita Surie Co-Chair: Khaled Eid	Chair: Leon Pretorius Co-Chair: Sahar Fawzy	Chair: Paulo Zawislak Co-Chair: Ibrahim Sultan	Chair: Laure Morel Co-Chair: Noura El-Gamal

DAY 2: TUESDAY, 21 September 2021

PARALLEL SESSIONS

TUESDAY
PERIOD 1
12:00pm - 1:45pm
Cairo Local Time
(GMT +2)

Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
R&D, Innovation and Entrepreneurship	MOT for Competitiveness & Resilience	Human, Socio-Economic and Culture Issues	MOT in the Industry and Service Sectors (1)	MOT in the Industry and Service Sectors (2)	Logistics and Supply Chain
Papers: 10, 47, 53, 80, 91	Papers: 45, 48, 73, 86, 96	Papers: 14, 65, 75, 179, 207, 208	Papers: 59, 63, 77, 78, 84, 87	Papers: 100, 117, 120, 124, 127, 135	Papers: 61, 70, 74, 92, 119, 137
Chair: Breno Nunes Co-Chair: Ahmed fayed	Chair: Marianne Horlesberger Co-Chair: Ismail El-Sayed	Chair: Raman Agrawalla Co-Chair: Ashraf Zeyada	Chair: Karuna Jain Co-Chair: Sara Ahmed	Chair: Tinus Pretorius Co-Chair: Ahmed Nasrat	Chair: Anuja Agarwal Co-Chair: Mahmoud Farouh

1:45pm - 2:00pm

Break (Broadcast Promotion Materials)

TUESDAY
PERIOD 2
2:00pm - 3:00pm
Cairo Local Time
(GMT +2)

Room: Webinar
Keynote Address
Ask [Mohamed El-Erian](#)
President, Queens' College, Cambridge



3:00pm - 3:30pm

Break (Broadcast Promotion Materials)

TUESDAY
PERIOD 3
3:30pm - 5:30pm
Cairo Local Time
(GMT +2)

IAMOT BOAD OF DIRECTORS AND EXECUTIVE COUNCIL MEETING
(Closed Meeting)

DAY 3: WEDNESDAY, 22 September 2021

PARALLEL SESSIONS

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
WEDNESDAY PERIOD 1 12:00pm - 2:00pm Cairo Local Time (GMT +2)	R&D, Innovation and Entrepreneurship	MOT for Competitiveness & Resilience	Technology Foresight and Forecasting	MOT in the Industry and Service Sectors (1)	MOT in the Industry and Service Sectors (2)	Logistics and Supply Chain
	Papers: 26, 105, 106, 113, 138, 155	Papers: 108, 118, 143, 150, 152, 97	Papers: 82, 99, 199, 200, 203	Papers: 132, 133, 136, 139, 142, 144	Papers: 148, 153, 160, 162, 180, 181	Papers: 37, 38, 168, 170
	Chair: David Bennett Co-Chair: Raafat Shalaby	Chair: Tarek Khalil Co-Chair: Mahmoud Elsamanty	Chair: Geerten van de Kaa Co-Chair: Abdallah Shokry	Chair: Anthon Botha Co-Chair: Mohamed Elshabrawy	Chair: Ruchita Gupta Co-Chair: Ahmed Moheeb	Chair: Roland J. Ortt Co-Chair: Passent El-Kafrawy

2:00pm - 2:30pm

Break (Broadcast Promotion Materials)

WEDNESDAY PERIOD 2 2:30pm - 4:00pm Cairo Local Time (GMT +2)	<p>Room: Webinar</p> <p>Panel Discussion</p> <p>Future Trends of MOT Education</p> <p>Dr. Tarek Khalil Nile University & IAMOT Founder</p> <p>Panelists</p> <p>Dr. Massoud Amin Dr. Hassan Aly Dr. Tinus Pretorius</p>
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DAY 4: THURSDAY, 23 September 2021

PARALLEL SESSIONS

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
THURSDAY PERIOD 1 12:00pm - 2:00pm Cairo Local Time (GMT +2)	R&D, Innovation and Entrepreneurship	MOT for Competitiveness & Resilience	Human, Socio-Economic and Culture Issues	MOT in the Industry and Service Sectors (1)	MOT in the Industry and Service Sectors (2)	MOT in the Industry and Service Sectors (3)
	Papers: 44, 128, 163, 173, 205, 214	Papers: 154, 164, 176, 194, 195	Papers: 50, 72, 102, 104, 204	Papers: 185, 209, 213, 216, 217	Papers: 83, 95, 110, 125, 146, 192	Papers: 174, 175, 206
	Chair: M. M. Awny Co-Chair: Tawfik Ismail	Chair: Kirankumar Momaya Co-Chair: Ahmed Madian	Chair: Nezar Sami Co-Chair: Lobna Said	Chair: M. Ezzat Co-Chair: Sherif Abdel Salam	Chair: Sally Saad Co-Chair: Yasser ElBatawy	Chair: Mohamed Wahby Co-Chair: Walid Atabany

THURSDAY PERIOD 2 2:00pm - 3:00pm Cairo Local Time (GMT +2)	<p>Room: Webinar</p> <p>Panel Discussion</p> <p>Pressing Issues in Technology Management: Data Privacy in a Post COVID-19 World</p> <p>Jeff Baetz Global Industry CTO - Industrial Market Sales for Data, AI & ML IBM</p> <p>Panelists</p> <p>Dr. Deema Alathel Mohamed Azzam Nicholas Holmes</p>
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THURSDAY PERIOD 3 3:00pm - 4:00pm Cairo Local Time (GMT +2)	<p style="text-align: center;">Conference Photo</p> <p style="text-align: center;">Conference Awards & Closing</p>
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4:00pm

End of Conference



DR. AMR TALAAT

EGYPT'S MINISTER OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

With over 30 years of solid experience in the IT and telecom industry, implementing working strategies for the provision of innovative digital technologies, Talaat was tasked with a chief mission to lead Egypt's Digital Transformation Initiative, 2020.

Talaat is confident of what immersive technologies can offer to serve as a strong arm to empower vital sectors of the economy and realize the Sustainable Development Strategy: Egypt Vision 2030.

Talaat's endeavor aims to oversee the implementation of several strategic projects, that include developing and securing the country's IT & telecom infrastructure, creating a generation of professionals specialized in advanced digital technologies, spurring innovation and improving government performance and quality of services offered to the citizen-as a main objective of the government's digital transformation mega program.

A strong believer in the power of youth as active participants in the socio-economic development of the nation, Talaat led a number of digitally-based empowerment initiatives to engage professionals to support such belief. Throughout his career, Talaat succeeded in materializing exceptional investments, merges and acquisitions to attract and nurture Foreign Direct Investment (FDI) to the country and create the value-add.

Under his leadership, before joining the Government of Egypt, Talaat spearheaded IBM Egypt's expansion plans, ensuring the creation of unique job opportunities and the establishment of centers of excellence to export digital services. Throughout his career at IBM Egypt, he held various leadership roles till he headed the firm.

Talaat was an Adjunct Professor at Cairo University with teaching experience in market and sales strategies and tactics, organizational behavior and strategic management. He was an honorary member at the ICT Board at Cairo University, member of the ICT Board of the Academy of Scientific Research and Technology, and the Chairman of ICT Committee of the American Chamber of Commerce.

Talaat earned his Doctor of Business Administration from the University of Paris - Paris School of Business and obtained a Master of Science in Computer Science from Illinois Institute of Technology, and holds an MBA from Paris ESLSA Business School, France. He is a graduate of Cairo University's Faculty of Engineering.



DR. DEEMA S. ALATHEL

**DATA & AI BUSINESS DEVELOPMENT
LEADER - IBM**

Alathel has over 15 years of experience in developing and managing IT solutions to facilitate the decision-making process at higher levels of management, in addition to strategic/operational planning and execution of IT transformation projects. Moreover, she has leadership skills and expertise in crisis management. Deema has volunteered as a part-time consultant for multiple government and non-government agencies such as King Salman Humanitarian Relief and Aid Center and the National Digital Transformation Unit. She also has several participations with the Saudi delegation from the Human Rights Commission at the UN. Alathel holds the position of Data & AI Business Development Leader at IBM where she works with clients across different sectors along with global IBM CTOs to assess client needs and strategize for long term strategic engagements to sustain success in projects that utilize artificial intelligence and emerging technologies. Alathel was also the Chief Information Officer at King Saud University, where she has also held other position. Alathel loves to challenge herself even in her free time. In August 2017, she trekked the Himalayas for two weeks, crossing 160 km on foot and successfully reaching Everest Base Camp in 8 days.



DR. MOHAMED EL-ERIAN

**PRESIDENT OF QUEENS' COLLEGE,
CAMBRIDGE UNIVERSITY**

Dr Mohamed El-Erian is President of Queens' College (Cambridge University), Professor of Practice at Wharton and Lauder Global Senior Fellow (University of Pennsylvania), Chief Economic Advisor at Allianz, and Chair of the Gramercy Funds. He is an advisor to the GIC Investment Strategies Committee and chairs the Microsoft Investment Committee. He serves on the boards of Barclays and Under Armour. Previously, he was CEO and co-CIO of PIMCO from 2007 to 2014, and former chair of President Obama's Global Development Council.

He was President and CEO of Harvard Management Company, Managing Director at Salomon Smith Barney/Citigroup, and Deputy Director at the International Monetary Fund in Washington, DC.

Dr El-Erian writes regularly, and is a Financial Times Contributing Editor and Bloomberg Opinion columnist. He has two New York Times' best sellers – the 2008 "When Markets Collide" and the 2016 "The Only Game in Town" – and was named four years in a row to the Foreign Policy list of Top Global Thinkers.

Dr El-Erian holds a BA in Economics from Cambridge University, as well as a Master's and PhD in Economics from Oxford University.



HASSAN Y. ALY

**PROFESSOR OF ECONOMICS AND
DEAN OF THE BUSINESS SCHOOL
AT NILE UNIVERSITY**

Professor Aly is a tenured Professor of Economics at Ohio State University; before joining Nile University as Dean of the Business School in May 2017, he served as the Founding Dean of the School of Public Administration and Development Economics, and Professor of Economics at the Doha institute (DI) for Graduate Studies.

In July 2015, Professor Aly was granted Emeritus status at Ohio State University. He started there in 1989 as an assistant Professor and gone through the ranks to reach full Professor in 2008. Professor Aly served on the Marion Campus, and in several positions in Columbus including Faculty Associate at the Middle East Studies Center, and Faculty Associate at the John Glenn Institute for Public Service and Public Policy. Between 2002 and 2005, he served as Director of Graduate Studies at Zayed University, UAE.

In addition to his academic career, Professor Aly served as the Chief Research Economist and Lead Economist at the African Development Bank (2009-2011), as Senior Advisor to the Minister of Planning in Egypt (Fall 2012). He is currently serving as a technical advisor to both the IMF and USAID.

Professor Aly is a lifetime research fellow at the Economic Research Forum, and in August 2021 was elected as a member of the Board of Trustees for this rather well-known regional body, representing Arab Countries, Iran, and Turkey.

Professor Aly was a Co-editor of the African Development Review (2009-2012), and of the Middle East Business and Economic Review (2002-2010). He is a member of the editorial boards of the Journal of Development and Economic Policies, and of the International Journal of Applied Business and Economics Research. In 2004 he was elected to the executive board of the Middle East Economics Association, where he served as Treasurer, an Executive Secretary, and two terms (2013-2019) as the Association's President.

He is the author of over fifty articles published in professional journals including the American Economic Review, Review of Economics and Statistics, Economic Development and Cultural Change, World Development, Economics Letters, Applied Economics, and Journal of Developing Areas among others and he has a lifetime citations number that exceeds 2000.



JEFFREY A. BAETZ

IBM INDUSTRY CTO / INDUSTRIAL MARKET

Jeff started his career journey in analytics back in 1997 and has worked for several technology OEM's and OEM Business Partners understanding how to control the complex sale and solving his clients' business problems leveraging software technologies and services.

Since joining IBM in August 2016, Jeff has worked for some of the largest technology provider companies such as AT&T, Nortel Networks, Verizon Business, and SAS, to name a few.

Since joining IBM in August of 2016, he has held positions as an Open Source Analytics Evangelist, Named Account Manager, and Analytics Portfolio Sales Leader assigned to Toyota, TFS, Lexus, Ford, Ford Motor Credit Corporation, FCA, Aptiv, Delphi Technologies, Boeing, and Honda North America – all within the IBM Industrial vertical market.

In April 2020, IBM promoted Jeff to the position of Global Industry CTO for IBM's Industrial Market and is focused on solutioning for our Automotive, Manufacturing, Oil & Gas, and Natural Resource Mining clients worldwide.

Jeff was born and raised in Metro-Detroit and has lived in the area his entire life. Naturally, supporting large, enterprises in the region, Jeff has a strong Automotive and Manufacturing background and understanding of the common business problems Analytics, Data, ML, AI, and Deep Learning can solve. Jeff resides in the Metro-Detroit area with his Wife and two kids.



DR. MASSOUD AMIN

**PROFESSOR OF ELECTRICAL & COMPUTER
ENGINEERING AT UNIVERSITY OF MINNESOTA**

A professor of electrical & computer engineering (ECE) and a University Distinguished Teaching Professor at the University of Minnesota. Dr. Amin is known as the Father of Smart Grids (<https://tli.umn.edu/tli-blog/inspiration-behind-smart-grid-series-defining-moments>), and as a cyber-physical security leader who directed all security-related research and development post-9/11 for all North American utilities. His practice, teaching and research focus is in complex systems: 1) defense networks – C4I, combat & logistics; 2) modernization, efficiency, security & resilience of interdependent national critical infrastructures; and 3) technology/business/policy foresight & strategy. Dr. Amin has made transformative contributions in the areas of defense, critical infrastructures, technology, policy, and business. His passion is developing leaders and powering progress.



MOHAMED AZZAM

**SENIOR DIGITAL TRANSFORMATION CONSULTANT
BOARD MEMBER OF IAMOT**

Mohamed Azzam more than 30 years of experience in diversified fields including: Information and Communications Technology (ICT), Management, and the Development and Clustering of Firms including Small & Medium Enterprises (SMEs). His assignments took place in Egypt and internationally, and in various business sectors and vertical industries, including: ICT, education, manufacturing, consumer products, maritime & transportation, automotive, healthcare, oil & gas, tourism, environment, utilities, construction, pharmaceutical, agribusiness and retail. Throughout Azzam's career, he initiated and implemented large national Public-Private-Partnership (PPP) initiatives. These initiatives were conducted with many Egyptian governmental agencies, such as Ministry of Communications and Information Technology (MCIT), Information Technology Industry Development Agency (ITIDA), Ministry of Education, Ministry of Trade and Industry, Telecom Egypt, as well as with different developmental programs funded by international donors operating in Egypt, such as Euro-Mediterranean Private Sector Development Program (PSDP), Industrial Modernization Center (IMC), Danish International Development Agency (DANIDA), and USAID.

In these initiatives, Azzam developed and implemented strategies and plans that helped in clustering and developing firms including SMEs, towards leveraging their competitiveness, innovation capacity and export readiness. These strategies and plans covered areas related to corporate-business[1]technology strategic planning, business development, local demand and export development, market awareness, and building of international strategic alliances networks. The alliances included potential buyers (both public and private entities), potential business partners, venture capitalists (VCs), investment bodies, donors, R&D funds, universities and research institutions.

Likewise, Azzam established and executed strategies and plans for increasing the technology utilization across the different social and economic sectors, while decreasing the digital divide in Egypt, with a special focus on the base of the pyramid and youth. His duties also included delivering training, workshops, seminars and public speeches, as well as coaching senior and middle management on the aspects of strategic management, corporate business-technology strategies alignment, emerging technology and market trends, social entrepreneurship, innovation and entrepreneurship/intrepreneurship practices, and implementation of best-business-practices within the enterprises for the enhancement of the overall performance. In addition, he carried out assignments related to development of functional specification documents and Terms of References (TORs), establishment of vendors' selection criteria for major projects, and supervision of the different implementation phases of projects for different vertical industries.



NEZAR SAMI

IAMOT BOARD MEMBER

INNOVATION & TECHNOLOGY MANAGEMENT CONSULTANT

Nezar has a wide range of experience in Management of Technology and being as Innovation, Strategic Management, Project Management and Digital Transformation Consultant

Nezar is the chairperson for the ISO56000 Technical Committee, Egyptian Organization for Standards and Quality (EOS)

Nezar is a board member of the International Association of Management of Technology (IAMOT); USA.

Nezar is a board member of the Arab Council for Social Responsibility (ACSR) and leading the Innovation and Entrepreneurship activities for the council.

Nezar is assigned by World Intellectual Property Organization (WIPO) as the National Expert and Coordinator for the Intellectual Property Policies for Universities and Research Institutions Project in Egypt

Nezar is "Innovation Management Coach" providing consultancy service for companies and organizations. Handle innovation processes in manufacturing companies and service providers. In addition to implementing Innovation Management training for Small and Medium Enterprises (SME's).

In 2017, Nezar also founded the "Nilepreneurs" Initiative; which is a nation-wide initiative that supports the Small and Medium Enterprises (SME's), Startups and Entrepreneurs in Egypt. The initiative is under the auspices of Central Bank of Egypt (CBE) and managed by Nile University. Nilepreneurs Initiative acts as the enabler and catalyst between banks and SME's ecosystem in Egypt.



NICHOLAS (NICK) HOLMES

**GLOBAL GOVERNMENT CTO
IBM CLOUD & COGNITIVE**

Nick is the Global Government Industry Chief Technology Officer for IBM. He has over 19 years of experience supporting different government agencies around the world. For the last 8 years, Nick had a global role supporting local IBM teams in pre-sales, asset development, and partnerships. Nick's role in life is to make Data & AI simple and consumable for Government Clients. He has a passion for solving client problems, by building simple use cases that showcase how Good Tech can be used to augment human beings.

In addition, Mr Holmes has an external role building the eminence of IBM across clients. He speaks at conferences, and on panels, as well as supporting industry events showcasing IBM products and assets. External engagements include: UMEX (Un-manned Systems Exhibition) – panellist on New Narratives on Border Security in light of the 4th Industrial Revolution, CES – 2020 – how Good Tech promotes Employee Wellness; GOVTECH – How Cognitive Computing can Promote Proactive Rehabilitation Strategies; Abu Dhabi Nat Sec – Cognitive and AI Trends in Policing; iFocus NSW Police – Cognitive and AI Trends in Policing; An Gardaí – Policing in Ireland Looking Forward.



PROF. TAREK M. KHALIL

**FOUNDING PRESIDENT OF NILE UNIVERSITY,
IAMOT FOUNDER & CONFERENCE
GENERAL CHAIR**

Dr. Tarek M. Khalil is the founding President, Provost and Dean of the graduate school of Management Of Technology (MOT) of Nile University (NU), Egypt. He previously served as Professor of Industrial Engineering and Professor of Biomedical Engineering at the University Of Miami College Of Engineering. He also held secondary appointments as Professor of Epidemiology and Public Health, Professor of Neurological Surgery and Director of the Ergonomics and Bioengineering Division, Comprehensive .Pain and Rehabilitation Center at the School of medicine

He served as Dean of the University of Miami Graduate School; Chairman University of Miami Department of Industrial Engineering; Director of the Environmental/Occupational Health and Safety Program and Director of the Management of Technology Program. He is a registered Professional Engineer in .the State of Florida and the Egyptian Syndicate of Engineers

Dr. Khalil is the Founder of the International Association for of its 20 Management of Technology and has chaired more than International conferences worldwide. He also served as Chairman of the Institute of Industrial Engineers (IIE) Council of .Fellows

Dr. Khalil is a recipient of many international awards and has books and authored or coauthored more 15 authored or edited .publications 300 than



DR. TINUS PRETORIUS

CHAIRPERSON OF THE GRADUATE SCHOOL OF TECHNOLOGY MANAGEMENT

Dr Tinus Pretorius is an Engineer from background and graduated with a PhD at the University of Pretoria, specialising in Engineering & Technology Management. After spending nineteen years in the energy, defence and automotive manufacturing industries he joined the University of Pretoria on a full-time basis. He was the Chairperson of the Graduate School of Technology Management for sixteen years and is currently Professor in Strategic Technology and Innovation Management. He is a rated researcher at the National Research Foundation and publishes regularly in journals and conference proceedings. He supervises PhD and Masters' research students on a regular basis and does consulting work in the field of Technology Management. He is a registered Professional Engineer with the Engineering Council of South Africa and previously the Chair of the IEEE South African Section and founding member of the IEEE Engineering Management Society in South Africa. He is a member of the IAMOT board and previously a management member of the Engineering and Technology Management Education and Research Council of PICMET.



DR. OSMAN AHMED

PRESIDENT IAMOT

For more than 35 years, Dr. Ahmed has created innovation wealth- both intellectual and capital- and demonstrated my ability as a successful strategic and technical leader. For last 25+ years, he has led innovation that spans complete digital ecosystem using IoT, predictive analytics, AI/ML solutions, and novel distributed edge intelligence across many energy sectors such as buildings, smart cities and infrastructure, smart grid, manufacturing, mobility, and hydropower plants. Currently, he serves as a Principal Technical Advisor at Pacific Northwest National Laboratory (PNNL), a national research laboratory operated by the Department of Energy, USA. He is currently leading a foundational project on Digital Twin for Hydropower Plant and plans to expand the scope of Digital Twin across all energy sectors. Prior to PNNL, he served at Siemens for about 28 years assuming various technical and leadership positions.