

The International Academy of CIO and Capacity Building for ICT Leaders (2004–2017)

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Introduction

Honoring Professor Toshio Obi's Waseda University retirement and appointment as professor emeritus and his stepping down as president of the International Academy of CIO (IAC) after serving nine years (2008–2017), this article chronicles the development of the International Academy of CIO from its beginnings in 2004 and 2005, founding in 2006 and then to 2017 and its worldwide role and impact.

The article reviews the IAC's role in developing and strengthening CIO and ICT Leadership curricula and programs; providing ICT leadership training to government leaders; highlighting and promoting best practices in Digital Government; and furthering government ICT policies and strengthening government ICT institutions. In addition, the article discusses how the IAC has furthered awareness of the potential for ICT to contribute to addressing major world challenges and three IAC focus areas of ageing society, natural disasters and Smart Cities. The article also discusses IAC's contributions to furthering insight of the potential of ICT for international development as well as risks such as the digital divide and to privacy and security. Lastly, the article discusses recent IAC efforts to promote and increase women in ICT leadership and the new challenges of cybersecurity.

The IAC itself is comprised of people and partnerships and I would like to recognize the contributions and friendships of many thousands from around the world and partnerships with governments and organizations including APEC TEL, U.N., ITU, OECD and World Bank.

While not able to acknowledge everyone, I would like to highlight the following for their special contributions in IAC leadership and initiatives including:

Elena Bellio, Italy; Maksim Belousov, Russia; Zdenek Brabec, Czech Republic; Luca Buccoliero, Italy; Lim Swee Chiang, Singapore; Yang Fengchun, China; Tomi Dahlberg, Finland; Elsa Estevez, Argentina; Mattias Finger, Switzerland; Chan Cheow Hoe, Singapore; Tong-yi Huang, Taiwan; Yuki Imamura, USA; Naoko Iwasaki, Japan; Tomasz Janowski, Poland; Hong-Wei Jyan, Taiwan; Taro Kamioka, Japan; James Kang, Singapore; Pravit Khaemasunan, Thailand; Hiroko Kudo, Japan; Calvin Leong, Macao; Francisco Magno, Philippines; Naoko Mizukoshi, Japan; Ashish Mukherjee, India; Russell Pipe, USA; Alexander Ryzhov, Russia; Sak Segkhoonthod, Thailand; Andrey Semenov, Rus-

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sia; Alexander Sokolov, Russia; Tatiana Sokolova, Russia; Frank Yu-Hsieh Sung, Taiwan; Jirapon Sunkpho, Thailand; Suhono Supangkat, Indonesia; Amos Tan, Singapore, Pairash Thajchayapong, Thailand; Tran Minh Tien, Vietnam; Jirapon Tubtimhin, Thailand; Kim Willems, Netherlands.

And honor the leadership of one of the IAC founders, Jantima Sirisaengtaksin, who very sadly passed away last year. Ms. Sirisaengtaksin who was always very kind and tremendously welcoming to visitors to Thailand as a host for IAC meetings was a IAC vice president for ten years and was renowned for her leadership in ICT and innovation in the Thailand government.

About the IAC

Before discussing and reviewing IAC history and role and impact—some background on the IAC today.

Founded in 2006, the IAC is a global academic and professional society established as an NPO in Tokyo, Japan, with a Secretariat in Bangkok, Thailand and country chapters. From initial co-founders of Japan, USA, Indonesia, Philippines, Switzerland, and Thailand, the IAC currently has active participation from about 50 countries. The IAC engages with governments, private sector, academia and NGOs to further ICT leadership and governance and associated national ICT policies and institutions.

IAC's initiatives include developing and publishing the annual Waseda—IAC Digital Government Rankings (<https://www.waseda.jp/top/en-news/53182>) now in their thirteenth year; and a Global E-Governance book series with IOS Press in Amsterdam and volumes including “ICT and Aging Society,” and “A Decade of eGovernment Rankings” (<https://www.iospress.nl/bookserie/global-e-governance-series/>); providing IAC Accreditation for masters' degree CIO and IT executive leadership programs; publishing the *Journal of CIO and Digital Innovation*; hosting the IAC Annual conference; undertaking research projects including with APEC on ICT Governance and ICT and Aging Society and initiatives including on ICT and natural disasters, women in ICT and Smart Cities. In addition, the IAC works with governments in developing ICT leadership and governance policies and legislation.

Setting the Stage for the IAC–ICT Innovation and ICT Leadership in 2004

With advances in computers and communications from the 1970's to the early 2000's and the development and adoption of corresponding new services, society and governments were becoming increasingly reliant on ICT. Not only had ICT technical capabilities increased rapidly but unit costs in processing speed, communications speed and computer storage decreased exponentially.

The 3G mobile Internet iMode service launched by NTT DoCoMo in Japan in 1999 was a harbinger of how technology was evolving from large mainframe computers to smaller devices and from enterprise systems to mobile applications. Subsequently, the iPhone launch in 2007 and adoption accelerated these shifts globally.

The ITU World Summit on Information Society (WSIS) held in Geneva in 2003 and Tunis in 2005 highlighted the potential of ICT for society and governments:

“The Tunis Summit represents a unique opportunity to raise awareness of the benefits that Information and Communication Technologies (ICTs) can bring to humanity and the manner in which they can transform people’s activities, interaction and lives, and thus increase confidence in the future”. (ITU 2005)

Not only did ICT’s have a role though, they had a strategic role:

“After many years of rapid growth and demonstration of its tangible benefits, ICT is now accorded a “strategic” role in most economies. This prominence is bringing a greater level of scrutiny of technology infrastructure from various sections of society, as well as international organizations. Ereadiness will advance, but governments should take care to ensure that their countries’ digital development proceeds in harmony with their social, economic and political objectives.” (Economist Intelligence Unit, 2009)

To further ICTs strategic role, Asia Pacific Economic Cooperation (APEC) economies agreed the Brunei Darussalam goal in 2000 having as an objective effective Internet access for all communities in all APEC economies by the year 2010.

In practice though many ICT projects were not delivering on their potential. While governments were spending many billions of dollars on ICT investment, projects were completed over schedule and over budget and in fact many projects were not utilized as envisioned or completed at all. There were also risks ranging from digital divide within countries or regions to economic, development and competitive risks for countries not adapting and utilizing technology effectively.

Given the potential of ICT and challenges in practice, ICT leadership was not keeping pace with the need. There was an “ICT leadership gap.” In addition, ICT institutions, governance and policy were not keeping pace with the new central role of ICT.

Leading to the IAC

Waseda 2004 CIO and eGovernment Workshop

With this global ICT and ICT leadership context, Professor Obi organized a CIO and eGovernment workshop at Waseda University in Tokyo in November 2004. Attendees and participants were from government, academia and private sector; and from across Asia Pacific and also Europe and the Americas. Discussions focused on country strategies for ICT and ICT in government and associated challenges of leadership and governance. In addition, the conference explored the potential of ICT for contributing to addressing major world challenges such as preparation and recovery from natural disasters, and rapid urbanization.

The Tokyo workshop led to initial partnering amongst the attendees and laid the groundwork for the development and founding of the IAC in 2005 and 2006.

APEC TEL CIO and CIO Institutions Projects

Following on to the Waseda 2004 workshop, participants from the Asia Pacific Economic Coopera-



Photo 1. Participants at Waseda 2004 CIO and eGovernment Workshop

tion (APEC) economies of Japan, Indonesia, Thailand, U.S., Malaysia, Philippines and Vietnam led by Professor Obi partnered on two CIO related (Asia Pacific Economic Cooperation Telecommunications Working Group (APEC TEL) projects. The projects “Development and Deployment of APECTEL GCIO Training Model” and “Developing Model GCIO Councils” had the objectives to develop curricula for CIOs and ICT executive leaders and provide training and develop best practices for establishing and governing CIO Councils.

The first project resulted in CIO training materials utilized in Asia Pacific universities and executive education training. The second project resulted in strategies for developing and operating CIO Councils to coordinate ICT policy across ministries within a government including on topics such as enterprise architecture and human capacity building.

The Founding of the IAC

With the initial success and interest in academic, government, private sector partnering on CIO, Professor Obi, Jantima Sirisaengtaksin, Thai Ministry of Finance, Jirapon Tubtimhin, NECTEC J.P. Auffret, George Mason and Pairash Thajchayapong, Permanent Secretary, Ministry of Science and Technology, Thailand met in Bangkok in April 2005 with the objectives for planning for the IAC.

Followon meetings including related to the APEC projects in September 2005 in Tokyo and May 2006 in Fairfax and with Francisco Magno, De Las Salle University, Manila, Suhono Supangkat, Bandung Institute of Technology, Bandung; and Mattias Finger, Ecole Polytechnique Fédérale de Lausanne (EPFL) led to the first IAC Annual Conference and Meeting held in Tokyo in June 2006 and adoption of the IAC charter. Pairash Thajchayapong, Permanent Secretary, Ministry of Science and Technology, Thailand, was elected as IAC’s first president (serving 2006–2008). Professor Obi succeeded Dr.

Pairasch and was elected president and served from 2008 to 2017 with Dr. Pairash becoming the IACs first Honorary President.

The IAC Charter addresses organization and governance and also outlines the IACs three major mission objectives of: research and partnering on ICT and its impact, role and potential in society; facilitating the exchange of knowledge and experiences on CIO, and developing global standards for CIO and CIO curricula.

Strong academic and research institutions with expertise in CIO education were integral to the IAC since its start with initial institutions comprised of Waseda University, Tokyo; George Mason University (a founding partner of the U.S. Federal Government's CIO University), Fairfax; National Electronics and Computer Technology Center (NECTEC), Bangkok; Ecole Polytechnique Fédérale de Lausanne (EPFL); De La Salle University, Manila and Bandung Institute of Technology, Bandung.

IAC Thematic Areas

The IAC has focused on the following key thematic areas related to CIOs and CIO institutions: CIO and ICT Executive Leadership; ICT Institutions and Policy; ICT and Addressing Major World Challenges; Technology Innovation; and ICT Leadership Partnering and Promotion.

CIO and ICT Executive Leadership

At the center of the IACs mission are initiatives and partnerships to further CIO and IT executive leadership through education and research. With the increasing role of ICT in society and industry, CIO and ICT executive leadership are integral to successful ICT adoption and application. As noted in earlier, there is an ICT leadership gap between the ICT leadership needed for today's ICT role and the number and capability of CIOs. This gap is especially prevalent in developing economies.

The IAC has two broad initiatives on CIO and ICT executive leadership—the annual Waseda—IAC Digital Government Rankings and Accreditation for Advanced Education in CIO and ICT Leadership.

In addition, the IAC has more focused CIO education initiatives including partnering on the development of New CIO masters' degree programs, inperson and distance training, and coordinating week long CIO and ICT study tours including in Japan, Thailand and the U.S.

Waseda—IAC Digital Government Rankings

Since 2014, the IAC has partnered with Waseda University on the annual Waseda—IAC International Digital Government Rankings Report (started by Professor Obi in 2005) which evaluates and provides comparisons of national digital government readiness and development.

The report is developed through surveys of government officials as well as independent research. The methodology is the result of discussions with international and national organizations including OECD, APEC, ITU, World Bank, United Nations DESA and national government ministries and agencies.

The 2017 International Digital Government Rankings Report reviewed 65 countries with ten indicators (and 35 sub-indicators) of:

- Network preparedness / infrastructure,
- Management Optimization / Efficiency
- Online Services / Functioning Applications
- National Portal / Homepage
- Government CIO
- Digital Government Promotion
- E-Participation / Digital Inclusion
- Open Government
- Cybersecurity
- Use of Emerging ICT.

Countries use the Reports to benchmark themselves against peers as well as to identify possible future plans and initiatives to strengthen their digital government readiness and development.

The Waseda-IAC International Digital Government Rankings Survey is overseen by an experts team comprised of a network of professors and institutions including: Japan: Toshio Obi, Naoko Iwasaki and Hien Nguyen, Waseda University, USA: J.P. Auffret, George Mason University, China: Yang Fengchun, Peking University, Finland: Tomi Dahlberg, Turku University, Russia: Alexander Ryzhov, RANEP School of IT Management, Thailand: Jirapon Sunkpho, Thammasat University, Taiwan: Taiwan E-Governance Research Center, Singapore: Lim Swee Chiang, National University of Singapore, Philippines: Francisco Magno, De LaSalle, Indonesia: Suhono Supangkat, Bandung Institute of Technology, Italy: Luca Buccoliero, Bocconi University, Elsa Estevez, UN University and National University of the South, Argentina and Czech Republic: Zdenek Brabec, Czech Technical University.

Accreditation for Advanced Education in CIO and ICT Leadership

To further the development and quality of CIO and ICT leadership master's degree programs, the IAC started the Accreditation Program for Advanced Education in CIO and ICT Leadership in 2015. The IAC accredits the master's degree program and accredited master's degree program students receive an IAC CIO program certificate upon graduation.

An IAC review team assesses curriculum; learning outcomes; faculty and staff; student professional experience and academic background; and program financial resources, facilities and equipment for applying master's degree programs. After evaluation, the IAC recommends to accredit, defer or not accredit the program.

The IAC has adopted a set of CIO core competencies and learning objectives to be addressed by the curriculum based on IAC research, IAC member consultation, the two APEC TEL CIO projects and national CIO core competencies and learning objectives. The core competencies and curriculum guidelines highlight the national and local context of IT executive leadership and promote relevant curriculum tailoring.

IAC core competencies are organized by individual, IT organization and business organization perspectives and serve as the foundation for IT course and curriculum development. The motivation is to

reflect the multiple perspectives of the role of the CIO in the competency structure and to provide flexibility to incorporate regional, cultural and organizational considerations in tailoring learning objectives to the local context.

Specific competencies within these perspectives include:

Individual / Personal

- Communications
- Systems and Design Thinking
- Service Mindset and Marketing
- Human Relationship Management

IT Departmental

- Project and Program Management
- Cybersecurity
- IT Policy and Organization
- IT Performance Assessment
- Acquisition

Business Organizational

- Strategic Aspects of Information Technology and Digital Business Transformation
- Innovation
- Technology Management and Assessment and Emerging Technologies
- Capital Planning and Investment
- E-Government
- Enterprise Architecture.

In reviewing a curriculum, the IAC considers:

- Curriculum and learning objectives address the generally accepted competencies for CIOs.
- Curriculum design incorporates regional, cultural, political and organizational backgrounds, with learning objectives tailored to local needs.
- Curriculum includes components considering the differences in policies, guidelines and strategies, between government and private sectors.
- Curriculum strives to stay current with the changes in CIO or IT executive competencies.
- Curriculum includes real world case studies and experiences.

As noted above, the IAC also undertakes more focused CIO education initiatives which include consulting and working with universities developing CIO master's degree programs and providing guidance on strengthening related master's degree curricula (for example MBA and Information Systems) to more fully integrate consideration of ICT leadership. The IAC was appreciative of the opportunity to consult and contribute to the development Thammasat University's College of Innovation CIO master's degree program.

In addition to these initiatives and to the IAC university partner CIO master's degree programs, the

IAC provides CIO training both in person and by video to partnering countries executive classes as well as organizes CIO delegation country visits including to Japan, Thailand and U.S.

ICT Institutions and Policy

The APEC CIO “Developing Model GCIO Councils” project was a first IAC initiative to contribute to strengthening the capability of CIO institutions and further associated policy and legislation.

The IAC has continued to focus on institutional capacity, policy and legislation in addition to CIO and ICT leadership on a country and regional basis including contributing to:

- Policy and legislation to establish and define the role of the CIO
- Strategies and policies on the development and administration of CIO Councils and government cross ministry ICT coordination
- Policies related to new technology and adoption of technology including on cloud, Big Data, cybersecurity, artificial intelligence and IOT; and ageing society, Smart Cities, eParticipation, environment and healthcare.

ICT and Addressing Major World Challenges

One of the motivations in establishing the IAC was to foster and further ICT leadership education and capability to help bridge the ICT leadership gap and contribute to furthering ICT’s benefits.

The IAC has contributed to discussions, policies and initiatives of broad global initiatives such as the Millennium Development Goals (MDGs) and subsequently the Sustainable Development Goals (SDGs) where ICT plays a major role.

In addition, the IAC has focused on major issues of great interest to IAC country members such as ageing society, natural disaster preparedness and recovery, Smart Cities and urbanization, environment and healthcare.

On each of these, the IAC and its members have contributed research, education and training, and policy and legislative recommendations, as well as hosting forums bringing together academia, government and private sector to exchange strategies, approaches and best practices and build awareness.

In a related ICT issue, the IAC has highlighted through research and awareness the need to promote and further the role of women in the ICT leadership. Jantima Sirisaengtaksin led the ICT for Thailand’s innovative tax payment and refund system and was instrumental in the IAC’s efforts in the women in ICT leadership area. Naoko Iwasaki has combined her CIO and ICT and ageing society research with research on women and ICT leadership. Professor Iwasaki is the recipient of the first Jantima award recognizing research and initiatives to further women in ICT leadership.

Technology Innovation

ICTs have progressed rapidly since the initial Waseda 2004 workshop and the IAC has stayed abreast of technology innovations—both potential benefits and challenges—for CIOs, CIO institutions, gov-

ernments, private sector and society. IAC technology related initiatives have ranged from research to practice based projects with APEC and private sector companies to highlighting innovations through conference tracks and sessions at the IAC Annual Conferences. In addition, the IAC has scheduled the IAC Annual Conference back to back with major technology innovation conferences in Tokyo, Bangkok, Singapore and Moscow.

The first two IAC Annual Conferences reflect several of these approaches. The 2006 IAC Annual Conference held in Tokyo had a theme of e-Governance and included technology related sessions such as the development of ubiquitous society in Japan and Korea—anytime, anywhere communications—and next generation networks.

The 2007 IAC Annual Conference also held in Tokyo was scheduled in conjunction with the 40th Tokyo Motor Show held in Makuhari Messe in Chiba City, Japan. The IAC conference connected to and mirrored several of themes of the Motor Show including innovations in environmental and safety technologies.

As part of contributing to addressing major world challenges and also in regard to the potential and challenges of technology innovations, IAC initiatives and workshops have also focused on robotics, cloud, 4G and now 5G, IoT, and more recently also AI, Big Data and cybersecurity.

ICT Leadership Partnering and Promotion

To extend reach and broaden perspectives, the IAC partners with multilateral organizations, private sector and governments in addition to universities. Multilateral partners include APEC, U.N., ITU, OECD and the World Bank and initiatives have included joint efforts on topics such as CIO (including the two APEC CIO projects), Digital Government and Ageing Society and joint conferences and workshops.

Several examples illustrating the breadth of the partnerships are:

- 2007 World Bank—IAC Global CIO Dialog—in Washington, D.C. with ICT leaders from Russia, Ukraine, Georgia, Armenia, Ghana, Pakistan and Tanzania joining IAC and World Bank participants by video conference.
- 2013 ITU and IAC e-Government/CIO Forum held in Bangkok in conjunction with ITU Telecom World 2013
- 2014 IAC workshop on ICT and Ageing Society at the United Nations University International Conference on Theory and Practice of eGovernance (ICEGOV) held in Guimarães, Portugal
- 2015 APEC—IAC eGovernment Forum and back to back OECD eLeaders Meeting
- 2016 U.N. Department of Economic and Social Affairs (U.N. DESA)—IAC workshop on ICT and Ageing Society held in New York.

The IAC also engages with and benefits from the insights and contributions of high level government officials including the first IAC president, Pairash Thajchayapong, Permanent Secretary, Ministry of Science and Technology, Thailand. IAC conferences and workshops have been venues for ICT

policy makers since the first annual IAC conference held in Tokyo in 2006 which included a session of ICT Policy and CIO Cooperation in Asia with Iwao Matsuda, Minister of ICT, Japan, Timoteo Diaz de Rivera, Commissioner of ICT, Philippines, Rattanapian Pravich, Minister of Science and Technology, Thailand and Djalil Sofyan, Minister of Information and Communications, Indonesia.

Related Initiatives

The IAC has three related initiatives that support the mission themes discussed above: Global E-Governance Book Series with IOS Press, *Journal of CIO and Digital Innovation* and the IAC Annual Conference and Meeting.

Global E-Governance Book Series with IOS Press

The IAC partners with IOS Press, Amsterdam, Netherlands on a Global E-Governance Book series as a way to disseminate research on ICT leadership and governance and related E-Governance subjects. Kim Willems, Associate Publisher, IOS Press has coordinated the series which now has seven titles:

- E-Governance: A Global Perspective on a New Paradigm, Editor—Toshio Obi (2007)
- Global E-Governance, Editors—Jirapon Tubtimhin and Russell Pipe (2009)
- The Innovative CIO, Editor—Toshio Obi (2010)
- E-Governance: A Global Journey, Editors—Mattias Finger and Fouzia Nasreen Sultana (2012)
- Ageing Society and ICT, Editors—Toshio Obi, J.P. Auffret and Naoko Iwasaki (2013)
- Postal Services in the Digital Age, Editors—Mattias Finger, Bernhard Bukovic and Muqbil Burhan
- A Decade of World eGovernment Rankings, Editors—Toshio Obi, Naoko Iwasaki (2015).

Journal of CIO and Digital Innovation

In 2017, the IAC launched and published the first edition of its *Journal of CIO and Digital Innovation*.

The Journal provides insights to CIOs and ICT practitioners on the potential of emerging technology trends and innovations. Within the mission, the journal covers the application of ICT to major societal issues such as aging society, Smart Cities, readiness and emergency response for natural disasters; opportunities, challenges and ramifications of rapidly developing technologies such as robotics, autonomous vehicles and artificial intelligence; and major leadership and eGovernance challenges such as capacity building and cybersecurity. The Journal includes Editors' perspectives, research academic papers, academic research in progress and case studies

The IAC also contributed to the Journal of E-Governance published by IOS Press and with editor Russell Pipe (who was also an IAC Advisor). The Journal of E-Governance started as I-Ways: Journal of Electronic Policy, Commerce and Regulation in 2005, was rebranded to Journal of E-Governance in 2009 and continued publishing through 2013.

The IAC Annual Conference and Meeting

The IAC holds an Annual Conference and Meeting partnering with a national host and with academia, private sector, government and NGOs. The IAC Annual Conferences focus on CIO and ICT leadership in general and also on current major world challenges and technology themes such as ageing society, natural disaster preparedness and recovery, healthcare, robotics and cybersecurity. The IAC Annual Conferences have been held with the following partners in:

2006	Tokyo	Waseda University
2007	Tokyo	Waseda University
2008	Tokyo	Waseda University
2009	Bangkok	NECTEC
2010	Indonesia	Bandung Institute of Technology
2011	Philippines	De La Salle University
2012	Moscow	Russia CIO Union
2013	Beijing	Peking University
2014	Singapore	National University of Singapore
2015	Tokyo	Waseda University
2016	Milan	Bocconi University
2017	Moscow	Russia Presidential Academy of National Economy and Public Administration (RANEPA).

In Summary and Looking Ahead

With Toshio Obi's leadership as president from 2008–2017 following Dr. Pairasch, the IAC has contributed greatly to CIO and ICT executive leadership education and institution capacity building and the application of ICT to major world challenges. In addition, Professor Obi's leadership has positioned the IAC well to continue to contribute as ICT innovation and adoption continues and even accelerates.

With academic, government, private sector partners and education and research initiatives on a range of current ICT topics from ageing society to Smart Cities, and current technology issues of AI, robotics and cybersecurity, the IAC continues to engage in current and new issues in CIO and ICT Executive Leadership. And with platforms including the Waseda–IAC Digital Government Rankings, Journal of CIO and Digital Innovation, IOS E-Governance Book Series, Accreditation for Advanced Education in CIO and ICT Leadership, and IAC Annual Conference and Meeting, the IAC is well placed to continue to have an impact as Professor Obi becomes the IACs second Honorary President.