

Institute of Systems Science, NUS

# Annual Report 2014



# VISION

Providing thought leadership in organisational innovation and business transformation

# MISSION

Developing infocomm and digital business leaders through education, applied research and consulting services

# PHILOSOPHY

- Differentiate through practice-based education system to achieve relevant outcomes valued by customers
- Conduct interdisciplinary applied research and professional education to drive innovation
- Focus systematically and holistically on customer, business, process, information technology, management and leadership

**Education**  
<Dynamism>

**Applied  
Research**  
<Innovation>

**Consulting**  
<Creativity>

 **ISS**

INSTITUTE OF SYSTEMS SCIENCE

## Table of Contents

CHAIRMAN'S STATEMENT .....	3
DIRECTOR'S MESSAGE .....	4
ISS MANAGEMENT BOARD .....	5
2014 HIGHLIGHTS .....	7
CALENDAR OF EVENTS.....	7
FIGURES.....	13
GRADUATE PROGRAMMES.....	14
MASTER OF TECHNOLOGY (MTECH) .....	14
GRADUATE DIPLOMA IN SYSTEMS ANALYSIS (GDIPSA) .....	20
PROFESSIONAL EDUCATION .....	23
MULTI-FACETED COLLABORATION WITH SINGAPORE WORKFORCE DEVELOPMENT AGENCY (WDA) .....	23
PROFESSIONAL COURSES.....	24
PARTICIPANTS' TESTIMONIALS.....	26
IGNITE (IMMERSE, GROW, NAVIGATE IN INFOCOMM TECHNOLOGY WITH ELOQUENCE) .....	28
CUSTOMISED TRAINING.....	28
CONSULTING SERVICES .....	29
E-GOVERNMENT LEADERSHIP CENTRE (EGL) .....	31
APPLIED RESEARCH .....	35
EVENTS, SEMINARS & SPEAKING ENGAGEMENTS.....	37
PARTNERS.....	39
CAREER SERVICES .....	40
CAREER COACHING .....	40
CAREER FAIRS.....	41
FUN4STAFF .....	42
ANNEX A: ISS TEAM .....	43
ANNEX B: GOVERNANCE.....	45
ANNEX C: SPEAKING ENGAGEMENTS .....	46
LOCAL EVENTS .....	46
OVERSEAS EVENTS.....	48
ANNEX D: EVENTS.....	50
ISS SEMINARS .....	50
ARCHITECTURE COMMUNITY OF PRACTICE (ACOP).....	55
IT SERVICE MANAGEMENT COMMUNITY OF PRACTICE (ITSM COP).....	56
INDUSTRY EVENTS .....	56

## Chairman's Statement



Since our inception 33 years ago, ISS has trained more than 91,000 participants. In 2014 alone, ISS has seen over 7,300 participants. ISS has reputable customers such as CapitaLand, Energy Market Authority, Government of Singapore Investment Corporation, Hewlett Packard, Infocomm Development Authority of Singapore, OCBC Bank, Singapore Airlines, Singapore Telecommunications, VISA and many others.

Looking ahead, ISS conducted a Management Board Retreat in December 2014. During the retreat, ISS staff and board members jointly derived an ambitious and comprehensive strategic plan for the next five years. While the detailed plan is still in the works, ISS has already proceeded to prioritise its initiatives, to anchor its thought leadership position in Infocomm and Innovation training and development.

According to a Forbes Entrepreneurs article, 90% of start-ups fail. The biggest start-up killers are losing to competitors, losing customers, losing personnel and losing passion. Understanding that the start-ups face challenges in recruiting senior and experienced staff as compared to the larger enterprises, ISS has adopted a holistic and integrated approach to address the start-up ecosystem. ISS will offer practice-based training, provide mentorship and incorporate apprenticeship in its new courses targeting at the start-ups. ISS will also look at digital tools to encourage staff of start-ups to acquire digital certificates. Connecting start-ups to the various agencies, ISS will leverage on partnership with private corporations, public agencies and NUS as a springboard to ensure that its programmes are launched in a timely manner and relevant to the needs of the start-ups.

Internally, ISS will make changes too. ISS will improve its processes to focus on offering distinctive value to its customers. For example, ISS will experiment with online platforms for blended learning to enhance ISS' strength in providing capability development services. People-wise, ISS will continue to develop its own staff members and hire talents to strengthen its human resources, to drive the new initiatives towards speedy successes. ISS will also heighten its effort to build its brand and reputation in thought leadership, playing a more active and visible role in the community. While leveraging its strong practice base to better meet the needs of the corporations and institutions for education and training.

Increasingly, better awareness of the application of technology - all the way from the leadership permeating throughout the rest of the organisation - means that ISS has the opportunity to continue its emphasis on preparing the community and leadership for the future, just as it did 33 years ago and has done since. Programmes will be rolled out this coming year.

Year 2015 has a special significance for ISS. Lim Swee Cheang, Director and CEO, will step down and pass the baton to Khoong Chan Meng. Because of his dedication and passion for ISS, the terms "Swee" and "ISS" have nearly become synonymous. For years, it has been a pleasure for me to work with Swee to grow ISS. As Chairman of the Management Board, I represent the members and management and staff of the ISS to thank Swee for his long service contribution to ISS. We also look forward to Swee's continued contribution to ISS as Senior Advisor.

*Dr Christopher Chia*  
*Chairman, ISS Management Board*

## Director's Message



ISS charted new ground in the year of 2014.

In January, ISS welcomed its 1<sup>st</sup> batch of students for the new Master of Technology in Enterprise Business Analytics (EBAC). For an enrolment of 65 students, ISS received 210 applications. Two students, Liu Lu and Huang Wanwen, together with Senior Member of ISS EBAC Practice, Catherine Khaw, emerged a prize winner for the "Data in the City" Data Visualisation Challenge organised by the Infocomm Development Authority of Singapore (IDA).

ISS was conferred Singapore's 1<sup>st</sup> National Continuing Education and Training (CET) Institute, in short NCI, for the National Infocomm Competency Framework (NICF) by the Singapore Workforce Development Agency (WDA). The NICF is the Singapore Workforce Skills Qualifications (WSQ) framework for the Infocomm Technology (ICT) sector. This is a strong endorsement of ISS' quality training delivery and commitment to workforce development.

In January, ISS rolled out its 1<sup>st</sup> course under WDA's Creative Industries Framework. The WSQ Implementing Design Thinking course was extremely well-received by the OCBC Bank employees. ISS then followed on with a suite of service innovation and design courses.

ISS also introduced its 1<sup>st</sup> mobile course, NICF- Design and Develop Mobile Enterprise Application with HTML5. This new 4-day workshop discusses the latest trends in mobile application development, offers a lab session to develop HTML5-based mobile applications, and imparts best practices for designing mobile-friendly user interfaces. We also ran our first Analytics Hackathon with Knowesis in October/November. In total, ISS seminars attracted over 1,600 participants from the industry.

For the 1<sup>st</sup> time, IDA and ISS, supported by the Asia-Pacific Economic Cooperation (APEC), International Academy of CIO (IAC) and Waseda University, jointly organised the APEC TEL Workshop & 9<sup>th</sup> IAC Forum on 16-17 June. The event was attended by more than 150 delegates from 22 countries.

In September, ISS won the bid to host the next International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES-2015). Scheduled on 7-9 September 2015, that will be the 19<sup>th</sup> KES conference but the 1<sup>st</sup> to be held in Singapore. This announcement was made at the KES-2014 at Gdynia, Poland.

I am pleased that Khoong Chan Meng, Director-Designate, has been earmarked to lead the ISS team from 1 March 2015. Chan Meng joined ISS as the Chief of IT Strategy and Management Practice in 2013. He demonstrated the passion and leadership quality to uphold the ISS spirit and mission. I am confident that ISS will continue to excel and exceed expectation under his stewardship. I wish him and the ISS team all the best in the years to come.

I would also like to use this opportunity to thank the ISS Management Board, NUS, WDA, IDA, Singapore Computer Society (SCS), Information Technology Management Association (ITMA), Singapore infocomm Technology Federation (SiTF), customers, partners and staff, for their trust, support and advice which are the ingredients for the ISS success.

*Lim Swee Cheang*  
*Director and CEO, ISS*  
*Apr 1998 to Feb 2015*



## ISS Management Board

**Guide** ISS on strategic business direction to be at the leading edge of innovation;

**Review** ISS programmes and products to ensure they meet industry's changing needs;

**Advise** ISS on appropriate organisational and personnel policies to support its mission and strategy;

**Assist** ISS to establish links with industry and leading institutions.

1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



- 1 **DR CHRISTOPHER CHIA** Chairman, Chrysвил Consultancy Pte Ltd
- 2 **PROF TAN ENG CHYE** (Ex-Officio Member), Deputy President (Academic Affairs) and Provost, National University of Singapore
- 3 **PROF MOHAN KANKANHALLI** (Ex-Officio Member), Vice Provost (Graduate Education), National University of Singapore
- 4 **JANET ANG** Managing Director, IBM Singapore Pte Ltd
- 5 **CHAK KONG SOON** Managing Partner, Stream Global Pte Ltd
- 6 **CHEE LAI YONG** Former Senior Managing Director, Health & Public Service – Asia Pacific, Accenture
- 7 **CHEW KWEE TIANG** Chief Executive Officer, Khoo Teck Puat Hospital, Alexandra Health Pte Ltd
- 8 **DR CHONG YOKE SIN** Chief Executive Officer, Integrated Health Information Systems Pte Ltd
- 9 **STEVE LEONARD** Executive Deputy Chairman, Infocomm Development Authority of Singapore
- 10 **LYNN NG** Senior Director (Policy Group) and Chief Data Officer, Singapore Workforce Development Agency
- 11 **ALPHONSUS PANG** Chief Operating Officer and Chief Information Officer, Attorney General's Chambers
- 12 **PANG HEE HON** Managing Director, Veritas Global Healthcare Pte Ltd
- 13 **JESSICA TAN** Managing Director, Microsoft Singapore Pte Ltd
- 14 **PROF TEO HOCK HAI** Head, Department of Information Systems, School of Computing, National University of Singapore
- 15 **ROSINA HOWE-TEO** Group Director, Innovation & InfoComm Technology, Land Transport Authority
- 16 **PROF LAWRENCE WONG** Professor, Department of Electrical & Computer Engineering, National University of Singapore (NUS); Deputy Director, Interactive and Digital Media Institute, NUS
- 17 **VINCENT WONG** Chief Executive Officer, IDA International Pte Ltd
- 18 **WU CHOY PENG** Group Chief Information Officer, Singapore Telecommunications Limited
- 19 **PROF BERNARD YEUNG** Dean and Stephen Riady Distinguished Professor, NUS Business School, National University of Singapore

## 2014 Highlights

### Calendar of Events

<u><b>JANUARY</b></u> <ul style="list-style-type: none"> <li>ISS welcomed its first batch of students for the new Master of Technology in Enterprise Business Analytics</li> <li>Workforce Skills Qualifications (WSQ) Implementing Design Thinking was launched as ISS' first course under Creative Industries Framework (CIF)</li> </ul>	<u><b>FEBRUARY</b></u> <p>Mrs Rosina Howe-Teo, ISS Management Board member, was conferred Singapore Computer Society's IT Leader of the Year Award</p>	<u><b>MARCH</b></u> <ul style="list-style-type: none"> <li>ISS was the first National Continuing Education and Training Institute for the National Infocomm Competency Framework (NICF)</li> <li>ISS delivered its first level-6 Service Excellence Competency Framework (SVCF) seminar</li> </ul>	<u><b>APRIL</b></u> <p>First IT Service Management Community of Practice with sharing from a user's perspective</p>
<u><b>MAY</b></u> <ul style="list-style-type: none"> <li>Commencement ceremony for Graduate Diploma in Systems Analysis 36<sup>th</sup> intake</li> <li>Seminar with CapitalLand: Service transformation through customer experience design and management</li> </ul>	<u><b>JUNE</b></u> <p>Asia-Pacific Economic Cooperation Telecommunications (APEC TEL) Workshop &amp; 9<sup>th</sup> International Academy of CIO (IAC) Forum</p>	<u><b>JULY</b></u> <p>Commencement ceremony for Master of Technology graduates</p>	<u><b>AUGUST</b></u> <p>ISS Open Day &amp; Career Fair</p>
<u><b>SEPTEMBER</b></u> <p>ISS won the bid to be the host for the 19<sup>th</sup> International Conference on Knowledge-Based and Intelligent Information &amp; Engineering Systems (KES-2015)</p>	<u><b>OCTOBER</b></u> <ul style="list-style-type: none"> <li>Appointment of Khoong Chan Meng as ISS Director-Designate</li> <li>Announcement of Infineon-ISS business analytics collaboration</li> </ul>	<u><b>NOVEMBER</b></u> <p>Commencement ceremony for Graduate Diploma in Systems Analysis 37<sup>th</sup> intake</p>	<u><b>DECEMBER</b></u> <p>ISS Management Board Retreat</p>
	<ul style="list-style-type: none"> <li>Knowesis-ISS First Big Data Analytics Hackathon</li> </ul>		

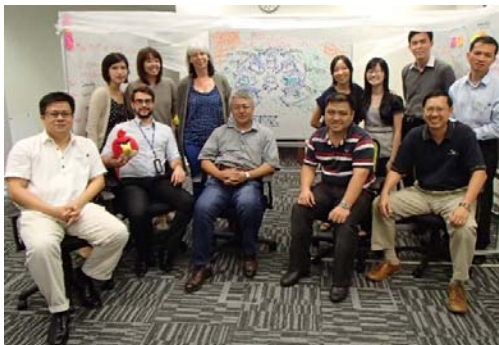


## January: ISS Welcomed Inaugural Batch of Students for Master of Technology in Enterprise Business Analytics (MTech EBAC)

In January 2014, ISS welcomed its first batch of students for the new MTech EBAC programme. For an enrolment of 65 students, ISS received 210 applications, more than 3 times oversubscribed. This MTech course aims to groom IT, engineering and science professionals with competencies to analyse data to gain valuable insights and develop optimisation models to offer business solutions, and hence filling the shortfall for data scientists in Singapore and the region. The programme focuses on the ecosystem of analytics in an enterprise, covering advanced analytics, decision making and optimisation, campaign management, software metrics and process improvement. It also includes a team-based practicum industrial attachment project to ensure that the students will be industry-ready with hands-on experience in data crunching and predictive systems development. The programme is offered by ISS in collaboration with the Department of Industrial and Systems Engineering and the Division of Engineering and Technology Management of the NUS Faculty of Engineering.



## January: ISS Launched First Creative Industries Framework Course



ISS launched its first course under the Workforce Skills Qualifications (WSQ) Creative Industries Framework (CIF). The first run of the WSQ Implementing Design Thinking course was conducted on 16-17 January for OCBC Bank employees. Following the success, the course was subsequently open to the public. Regina Reitter (third from left, standing) decided to spend her personal development budget flying from Vienna, Austria to Singapore to attend the WSQ Implementing Design Thinking course. With 23 years of work and management experience in the financial industry, she wanted to understand the cultural difference between Asia and Europe in driving innovation.

## February: Mrs Rosina Howe-Teo Conferred SCS' IT Leader of the Year Award

ISS Management Board member, Mrs Rosina Howe-Teo, Group Director for Innovation and InfoComm Technology at Land Transport Authority, was honoured with the Singapore Computer Society's IT Leader Awards 2014. The conferment of the IT Leader of the Year award was a recognition of her leadership in driving innovative use of Infocomm technology for Singapore's land transport services, which helped the country and the organisation win numerous international accolades. The announcement was made on 21 February during the SCS Gala Dinner attended by close to 1,000 guests from the public and private sectors.



## March: ISS was the First National Continuing Education and Training Institute for National Infocomm Competency Framework



*National CET Institute plaque presentation during the ISS annual luncheon on 3 March: (from left) NUS Deputy President (Academic Affairs) and Provost Professor Tan Eng Chye; ISS Director & CEO (Apr 1998 to Feb 2015) Mr Lim Swee Cheang; WDA Chief Executive Mr Ng Cher Pong; and ISS Management Board Chairman Dr Christopher Chia.*

ISS was conferred the pinnacle status of National Continuing Education and Training (CET) Institute by the Singapore Workforce Development Agency (WDA). This put ISS as the first National CET Institute (NCI) for the National Infocomm Competency Framework (NICF), which is the Singapore Workforce Skills Qualifications (WSQ) framework for the Infocomm Technology (ICT) sector.

The recognition is reserved for CET Centres which have demonstrated a high quality of delivery and commitment to supporting workforce development programmes. In attaining the NCI status, ISS had demonstrated its abilities to achieve practical outcomes, ensure organisational excellence and provide quality WSQ and NICF programmes and services. Moving forward, ISS plans to be the forerunner in training ICT professionals in existing, new and emerging ICT skills areas, and to spearhead the adoption of innovative learning methods to respond quickly to skills gaps and shortages.

## March: ISS Delivered First Level-6 Service Excellence Competency Framework Seminar

The “Transforming Service through Service Innovation” seminar, funded by WDA and hosted at Khoo Teck Puat Hospital (KTPH) Auditorium on 28 March, was ISS’ first level-6 seminar under the Service Excellence Competency Framework (SVCF). Speakers at this half-day event demonstrated that the transformational value of service innovation was available to any organisations, regardless of size and resources. After a panel discussion, participants took a tour around KTPH to view the innovation projects. The feedback from the 30 participants was excellent. The speakers received an overall rating of 4.4 (1=Poor, 5=Excellent).



*(Left to right) Mr Stuart Smith, NUS-ISS; Mrs Chew Kwee Tiang, CEO of Khoo Teck Puat Hospital, Alexandra Health; Dr Christopher Chia, Chairman of ISS Management Board; and Professor Jochen Wirtz, NUS Professor of Marketing, and Director of UCLA-NUS Executive MBA Programme.*

“The panel of speakers for this seminar is one of the best I have attended. They are so inspirational. I really got more than what I expected. Thank you.”  
 - Chong Hoong Sang, Supreme Court

## May: Commencement Ceremony for Graduate Diploma in Systems Analysis 36<sup>th</sup> Intake

Commencement ceremony for the 59 graduates of the Graduate Diploma in Systems Analysis (GDipSA) 36<sup>th</sup> intake took place on 20 May. The Guest-of-Honour was ISS Management Board member, Mr Pang Hee Hon.



## June: APEC TEL Workshop & 9<sup>th</sup> IAC Forum



Infocomm Development Authority of Singapore (IDA), the e-Government Leadership Centre (eGL) and ISS, supported by the Asia-Pacific Economic Cooperation (APEC), International Academy of CIO (IAC) and Waseda University, jointly organised the APEC TEL Workshop & 9<sup>th</sup> IAC Forum on 16-17

June. Over 150 delegates from 22 countries gathered to discuss innovation and digital inclusion for the ageing and special needs sector, and to exchange experiences on bridging the digital divide by harnessing data analytics for greater citizen engagement and improved public service delivery. The event brought together policy makers, academia, non-government organisations, voluntary welfare organisations and industry practitioners.

The highlights of the event included the opening addresses by Dr Alan Bollard, APEC Executive Director and Professor Toshio Obi, IAC President. The keynote presentations were delivered by Dr Surachai Srisaracam, Permanent Secretary, Thailand Ministry of Information and Communication Technology; Mr Yasushi Yoshida, Director General, Japan Ministry of International Affairs and Communications; and Ms Emer Coleman, Founder of DSRPTN Consulting and former Deputy Director of Digital Engagement, UK Government Digital Service.



Besides learning from the 30 thought leaders from over 12 countries, the event provided excellent networking opportunity. The workshop concluded that the economies should develop broad-based steps, particularly to accelerate problem-solving innovation, design secure and resilient environments, build strategic Infocomm capabilities, align policies with user-driven needs, promote scalable solutions, harness data analytics for citizen participation, increase cross-cutting research, and raise social awareness about ageing and disabilities.

## July: Commencement Ceremony for Master of Technology Graduates

The Master of Technology (MTech) commencement ceremony was held on 9 July at NUS University Cultural Centre. The 161 graduates from the Software Engineering and Knowledge Engineering specialisations took photos with the ISS lecturers to mark this important milestone.





## August: ISS Career Fair



14 companies, namely, Ecquaria Technologies, Hewlett Packard Singapore, Housing and Development Board, Infineon Technologies Asia Pacific, Inspire-Tech, Integral Solutions, NTT Data Business Solutions, PayPal, Shang Market, Telistar Solutions, Total eBiz Solutions, ViSenze, Wincor Nixdorf, and Zenith Infotech were present at the Career Fair on 16 August. Together, the companies offered over 50 job openings to recruit software developers, software engineers, project managers, web designers, programmers, systems analysts, business analysts, etc. A total of 127 participants attended the Career Fair. Better received than the previous career fair, this August event received an overall satisfaction rating of 4.1, both from the recruiters and the participants.

Jennifer See, HR Manager of Ecquaria, said, "Ecquaria first attended the NUS-ISS Career Fair in 2013 to source for suitable candidates to meet our recruitment needs. We continue to participate because the career fairs are a great way to meet potential employees with the right skillset for our jobs. There is good alignment between the courses offered by ISS and our talent recruitment and development strategies."

The event was held together with ISS Open day, which provided a good opportunity for prospective students to learn about the ISS graduate programmes, and to network with ISS teaching staff, students and alumni. The event showcased projects developed by the ISS graduate students during their internship with organisations in the Infocomm industry.

## September: ISS would be the Host for 19<sup>th</sup> International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES-2015)

At the 18<sup>th</sup> International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES-2014) held at Gdynia, Poland on 15 September, KES International unveiled that ISS would be the host for the 19<sup>th</sup> conference, to be held on 7-9 September 2015 at Marina Bay Sands Hotel, Singapore. This will be the first time this conference is held in Singapore. The KES conference consists of keynote talks, presentations and workshops for the sharing of research results for intelligent systems and related subjects.

## September: CapitaLand's Senior Employees Attended Extreme Innovator Workshop

Through ISS' Extreme Innovator workshop, 110 senior employees of CapitaLand had a fun day gaining tangible innovation and design thinking skills, and learned that innovation should be a way of thinking across an entire organisation, from the shop floor to the board room.



*"The course had been an eye-opener that innovation is not that scary and that I can do it too!"*  
 – a member of the CapitaLand management team

## October: Appointment of Khoong Chan Meng as ISS Director-Designate



NUS announced that with effect from 1 October 2014, Khoong Chan Meng, then Chief of IT Strategy and Management, would be reappointed as Director-Designate. On 1 March 2015, he would take on the position of ISS Director and CEO from Lim Swee Cheang. Prior to joining ISS, Chan Meng was the Group Chief Information Officer of RGE, a multi-national group of companies in the natural resources-based manufacturing industry, overseeing investments on IT and IT-enabled shared services across the RGE group. Prior to RGE, he was the Government Chief Information Officer of the State of Qatar, driving national programmes in e-government, e-health, e-education, e-inclusion and ICT industry development. Before his relocation to Qatar, Chan Meng held leadership positions in Electronic Data Systems Corporation, Atos Origin, Singapore Computer Systems, National Computer Board, and Information Technology Institute.

## October: Infineon-ISS Business Analytics Collaboration



Infineon announced on 28 October the opening of its first global Business Analytics Centre of Competence (BACoC) at its Asian regional headquarters in Singapore. The centre will serve as an incubation for the development of business analytics capabilities, including investing in data management technologies, developing analytics skills and visualisation techniques to enhance user experience, and integrating analytics into decisions and processes. In addition to establishing the BACoC, Infineon is partnering with ISS and Temasek Polytechnic to offer analytics projects to augment classroom learning with real-life business cases.

## October/November: Knowesis-ISS First Big Data Analytics Hackathon



*(Left) The winning teams with Charles Pang, Chief of ISS Knowledge Engineering Practice (middle).*

For the very first time, ISS partnered with Knowesis to organise a Big Data Analytics Hackathon. The objective was to expose the MTech students to real-life experience in developing analytical solutions to visually present telecom data. Conducted over a 4-week period in October to November, Hackathon attracted close to 50 students to sign up, from all the three specialisations of Knowledge Engineering (KE), Software Engineering (SE), and Enterprise Business Analytics (EBAC). Eventually 9 teams qualified for the finals. The top 3 prizes went to Team Zinnovation by David Low Jia Wei and Zane Lim Zhi Yuan; Team NewBee by Sam Gu Zhan, Laurent Wijaya and Francisco Deligero Liwa; and Team Defanatics by Darren Lee Deng Min and Feng Feng.

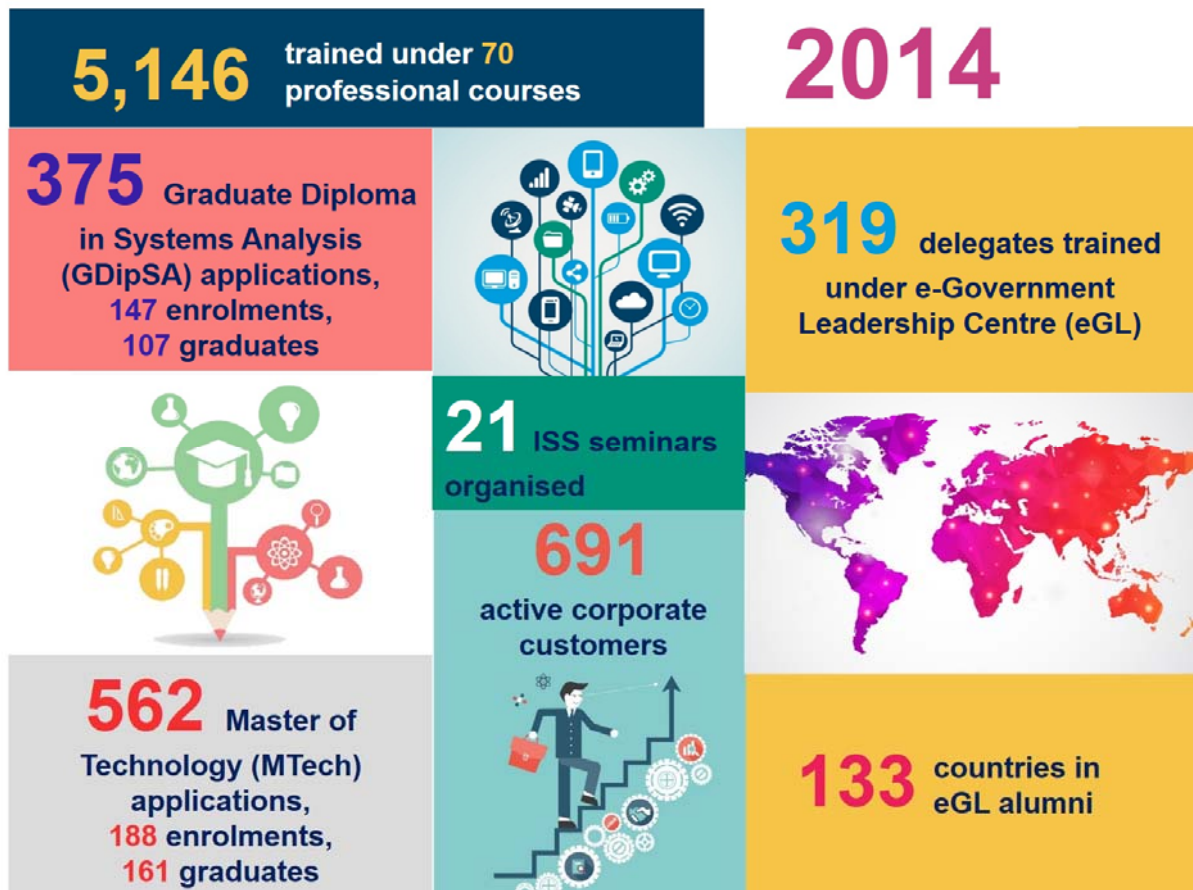


## November: Commencement Ceremony for Graduate Diploma in Systems Analysis 37<sup>th</sup> Intake

ISS graduated another batch of GDipSA students. The 48 graduates heaved a sigh of relief and joy at their commencement ceremony on 13 November. The Guest-of-Honour was ISS Management Board member, Mrs Rosina Howe-Teo.



## Figures



## Graduate Programmes

ISS offers four graduate programmes, the Masters of Technology (MTech) and the Graduate Diploma in Systems Analysis (GDipSA). Since 1981, ISS has delivered graduate programmes to over 4,000 students, focusing on the practical aspects of IT, with emphasis on state-of-the-art techniques, tools, technologies and methodologies.

With its NUS brand name and students' desire to study overseas, both MTech and GDipSA have strong appeal to foreign students, especially in the region where there is high demand for IT professionals. These international students come from a broad spectrum of disciplines, taught by ISS lecturers from equally wide spread of countries and background. The interaction and learning in this cross-border and cross-cultural community expose the students to a microcosm of the globalised world.

Taking the perspective that ISS is training manpower for the region and not just for Singapore, ISS continues to maintain ties with the students even after they return to their home countries. An example is Ms Phyu Phyu Khaing, a graduate of the GDipSA 27<sup>th</sup> intake, who returned to Myanmar after her graduation in 2012 to take up the position of an IT Manager at Coca Cola Myanmar.

Each ISS graduate student undertakes a team-based internship or industrial attachment project at a sponsoring organisation. This win-win arrangement allows the sponsoring organisation the opportunity to experiment with new technologies, techniques and methods. It also allows the student to gain deeper insights into the subjects he studied in class, to enhance his interpersonal and collaborative skills, and to transit into future work roles in the industry upon graduation.

Zhang Yu Jie, a GDipSA graduate who came from Gansu, China, was a beneficiary of this arrangement. While the language barrier was difficult for her at the beginning, she managed to overcome it. Yu Jie did her industrial attachment at NEC Singapore, and was thereafter engaged by the company as a software engineer. "The industrial attachment was what got me started working in a top company in the industry," said Yu Jie, who now as part of her job, conducts systems integration tests for registries and processing systems for the Intellectual Property Office of Singapore.

ISS has institutionalised its recruitment effort to proactively seek out prospective students for the graduate programmes and professional courses. As such, recruitment is now an ISS corporate function with full-time staff hired and dedicated to organise local and overseas preview talks and roadshows, as well as to participate in partners' events to reach out to a wider audience. ISS intensifies its marketing outreach to target Singapore citizens and permanent residents to enrol in the part-time graduate courses, and foreign students for the full-time courses.

### Master of Technology (MTech)

The ISS MTech programme offers master's degrees awarded by NUS, in Software Engineering (SE), Knowledge Engineering (KE) and Enterprise Business Analytics (EBAC). The SE and KE specialisations are jointly offered with NUS School of Computing and NUS Department of Electrical & Computer Engineering, whereas the EBAC specialisation is jointly offered with NUS Department of Industrial & Systems Engineering and Division of Engineering & Technology Management of the NUS Faculty of Engineering. These programmes are conducted full-time over 1.5 years or part-time over 2.5 years.

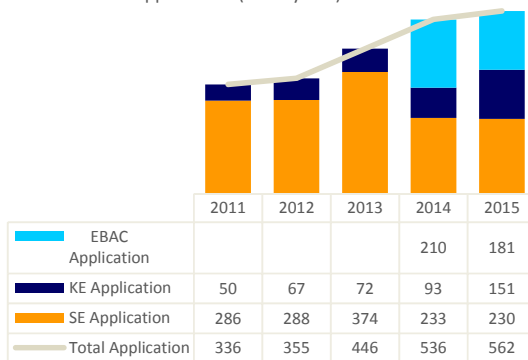
The MTech programmes are designed to produce highly employable and well-rounded software engineers, knowledge engineers and data scientists equipped with a good mix of theoretical knowledge and practical skills required by the industry. Many MTech graduates have built successful careers in roles such as software architects/designers, software project managers, software quality managers/consultants, enterprise architects, IT consultants, knowledge engineers and data scientists,

in a wide variety of industries such as systems integration, defence, banking and finance, logistics, electronics, manufacturing and transportation.

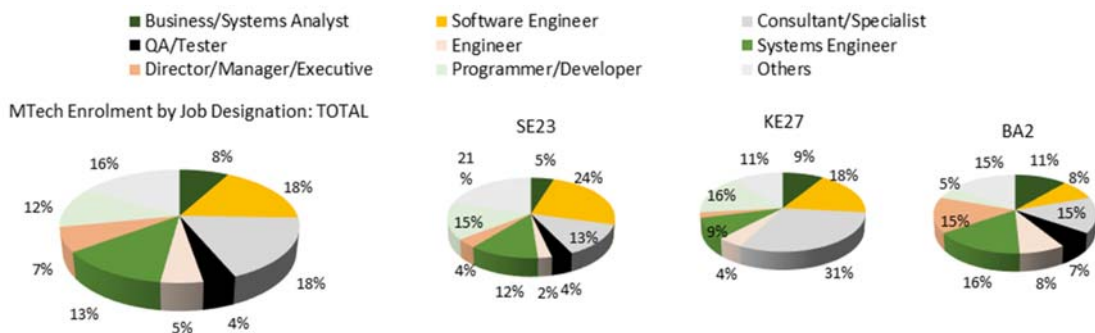
The MTech curriculum was refreshed by a major revamp of MTech (KE) to create closer alignment with intelligent systems development for business analytics applications. In addition, new electives were introduced on computational intelligence, advanced software estimation, software maintenance and evolution, web analytics, campaign management, customer relationship management and analytics for logistics management. The MTech (EBAC) focuses on the ecosystem of analytics in an enterprise. The EBAC students build hands-on experience in the classroom using commercial tools such as IBM SPSS Modeller, IBM SPSS Statistics, R, R Studio, Tableau, SAS Base, SAS Stat, SAS Enterprise Guide and SAS Enterprise Miner.

Recognising the high standing and quality of the MTech programme, the College of Computing of Sichuan University, China, sponsored a team of 5 SE students to take part in a mobile app development competition based on the Windows Mobile platform. All expenses for the visit paid for by the Sichuan University, the SE full-time students participated in the competition that took place from 29 June to 8 July. They were Bala Manikandan, Sathish J R, Sathish Kumar Meganathan, Srinath V R, and V J Arun Raja.

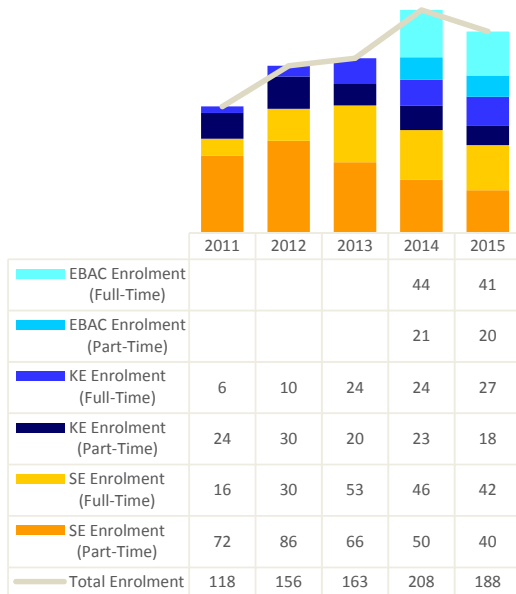
MTech Applications (last 5 years)



In 2014, the MTech programmes had a combined student population of 452 students. ISS received a total of 562 MTech applications for the enrolment in 2015, 230 (41%) were for the SE 23<sup>rd</sup> intake, 151 (27%) for the KE 27<sup>th</sup> intake and 181 (32%) for the EBAC 2<sup>nd</sup> intake. One-third of the 562 applications (188) were shortlisted and enrolled in 2015, of which 82 (43%) enrolled in SE23, 45 (24%) in KE27 and 61 (33%) in BA2. 78 (42%) of the 2015 enrolment were part-timers and 110 (58%) were full-timers.



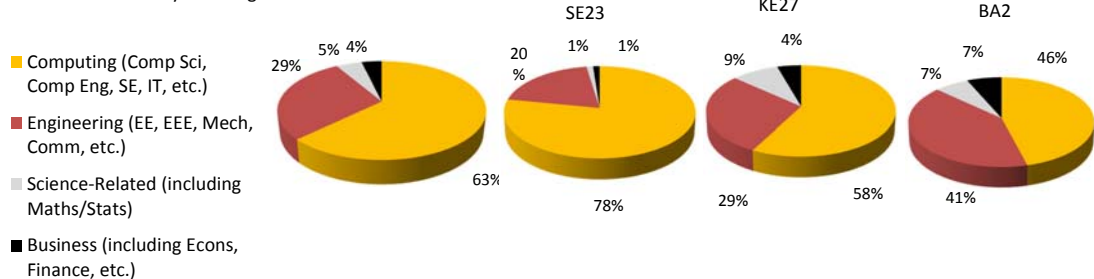
MTEch Enrolment (last 5 years)



Singapore citizens and permanent residents took up the biggest share of the part-time programme (59%), whereas the full-time programme was dominated by students of Indian nationality (71%). The part-timers have an average of 6.1 years of working experience, whereas the full-timers are generally less experienced with 2.8 years in the industry.

The MTEch students came from more than 100 different companies, and one-third (36%) were software engineers, consultants and specialists. Two-third (63%) of the students had Computing as their first degree, and slightly less than one-third (29%) had first degree in Engineering. The students are predominantly male, making up three-quarter (76%) of the student cohort.

MTEch Enrolment by First Degree TOTAL



For the new students who just joined the MTEch programme, ISS organised orientation and team-building activities to break the ice.



(Above) Welcoming the MTEch students and a tour of ISS in January.

For the existing students and alumni, ISS organised industry events, career workshops and career fairs to facilitate networking with industry and human resource practitioners, and for the unemployed to seek job opportunities. To engage the alumni that had returned to their hometown, ISS staff make use of overseas events to catch up with them, and the alumni are in turn invited to share their ISS experience and interact with potential students at their respective countries.



## Industrial Attachments

### NUS iCreate Mobility Challenge Winner (Silver)



4 SE students created an Intelligent Attendance System and emerged the 2014 NUS iCreate Mobility Challenge Winner (Silver). The “I’m In” facial recognition application used Apple’s new Bluetooth LE iBeacon technology to automatically take attendance as students entered the classroom. The proud winners were Anusha Ravishankar, Rajeswari Gangasani, Ramprasath Ramamurthi and Sharique Azam.

11 teams from the 20<sup>th</sup> batch of the SE part-time students completed their industrial attachment projects in February. For the 21<sup>st</sup> batch of SE students, 7 teams completed theirs in April, another 8 teams were slated to complete by January 2015. On the other hand, 7 teams of the 22<sup>nd</sup> batch of the SE students took on full-time projects that started in August and would end by March 2015. Examples of these projects are:

*Boon Tong Kee project:* an enterprise inventory system to better manage day-to-day request and replenishment of stock and supplies by reducing company wastage, increasing productivity, and streamlining supply chain management processes across outlets.

*UFIS Airport Solutions project:* to automate generation of rosters for airport staff based on shift patterns.

*MVI Technologies project:* a mobile food and beverage ordering system to improve operational efficiency in collection and delivery of orders in food courts and restaurants.

*MIMS project:* to automate the print, digital and mobile publication process for its medical magazine, to facilitate the collaborative work of the editing and publishing teams based on a pre-defined workflow, and to tag information by medical terms so that relevant articles could be channelled to the targeted users.

*Chloro Code project:* to build a Business-to-Business platform to procure outsourcing services and manage outsourcing contracts.

*FIS project:* to build a standalone system that would simplify the daily operations and maintenance tasks for IST, which was a credit and debit processing switch developed by FIS.

*Institute for Infocomm Research project:* to design, develop, test and deploy a video management system for multi-camera scalable video surveillance applications.



## StarCraft Artificial Intelligence (AI) Competitions



The KE students also have their fair share of excitement. 5 students, namely, Gu Zhan, Francisco Liwa, He Tao, Liu Jie and Jinson Xu, developed an intelligent software robot called NUS-Bot and represented Singapore to compete in two top annual StarCraft AI competitions organised by Artificial Intelligence and Interactive Digital Entertainment (AIIDE) and IEEE Computational Intelligence and Games (CIG).

The KE students grouped themselves into teams of 2 to 3 for their industrial attachment projects. One project was a system developed for C.K. Tang to do targeted advertisements in their marketing promotion. Yet another team developed a semantic search engine for CrimsonLogic to enhance user experience while searching for business licences on Singapore Government's website.

## "Data in the City" Data Visualisation Challenge

2 EBAC students, Liu Lu and Huang Wanwen, together with Senior Member of ISS Enterprise Business Analytics Practice, Catherine Khaw, took part in the "Data in the City" Data Visualisation Challenge and were among the top 8 prize winners. The Challenge, organised by the Infocomm Development Authority of Singapore (IDA), invited the public to celebrate Singapore's 50<sup>th</sup> birthday by telling the Singapore Story through innovative use of data visualisation.



Other EBAC students in the inaugural batch were not left out. More than 40 EBAC students organised themselves into 19 project teams, embarking on full-time projects with enterprises such as Daily Motion, Decision Sciences, HP, IBM, Inland Revenue Authority of Singapore, Jurong Port, Khoo Teck Puat Hospital, Land Transport Authority, Panasonic, PayPal, Singapore General Hospital, Singapore Press Holdings, Singtel and Venteswork. There were also two class projects. One was to apply analytics to measure the value delivered by India public distribution system; the other was to improve cognitive tutor models for learning algebra.

## Students' and Graduates' Testimonials



"NUS-ISS' Master of Technology programme is quite well-known in the IT industry. I've come across many people who graduated from NUS-ISS, and they are doing well at work. I have learnt a lot from the programme - I deepened my understanding on certain subjects learnt during my Bachelor's degree and gained insight to new technologies and the latest industry standards. The modules are very practical, up-to-date and relevant to the actual IT world, and the knowledge I gained can be instantly applied in my work."

- Yu Chui Chi, Singapore, MTech (SE). Senior IT Consultant, CPF Board

"Studying at NUS-ISS has not only broadened my knowledge and software capabilities; the intensity of the course has also changed my perspectives and moulded my values - team spirit, diligence, professionalism and care for peers.

Modules are designed to simulate real-life scenarios, and I was able to put to practice what we've learnt to my workplace immediately."

- Darryl Ng, Singapore, MTech (SE). Project Engineer,  
Temasek Polytechnic



"The Master of Technology course offers a good balance of understanding and implementation. I find the focus on problem solving and application to be very helpful in the transitioning of new knowledge into my work. The various industry case studies and experience sharing offer interesting insights and serve well to demonstrate the potential of the various techniques."

- Koa Ming Hong, Singapore, MTech (KE), Winner of the SPH Gold Medal and Prize. Senior Engineer, Defence Science & Technology Agency



"During my internship at CrimsonLogic, I was involved in the design and software development process. It was a challenging yet wonderful experience as it was an opportunity to put various advanced knowledge engineering concepts like semantic networks, fuzzy string matching, information extraction and text mining into practice. This project resulted in a working prototype and was well received by the company."

- Nitin Pradeep Kumar, India, MTech (KE). Cloud Quality Engineer, Appcelerator

"After working for 16 years, I decided to pursue MTech (EBAC) at ISS. ISS is known to be practical and industry-based, having lecturers coming directly from the industry. This makes the lessons and lectures relevant to the current working environment. Being a part-time student, I appreciate the fact that classes are conducted on weekends, which allows me to focus on my day job and broaden my understanding of how data analytics is being practically applied in the real world today during the weekends."

- Ian Lo, Singapore, MTech (EBAC), current student. Solution Architect,  
MavenWire



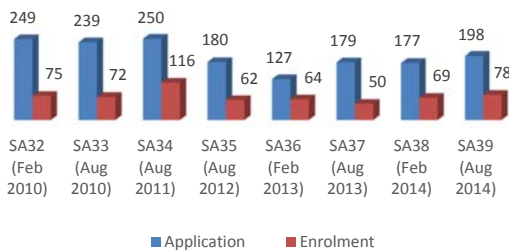
"I was a Network Operations Advisor at Accenture (India) before coming to Singapore to do this Master's programme. This course has an extensive syllabus that explores the use of analytics across multiple business domains ranging from marketing, finance, healthcare, logistics and operations. The learning curve has been steep and the course pattern is rigorous. Despite having 4 years of industry experience, I am able to learn something new every day. The teaching pattern is very hands-on and exposes us to practical business scenarios that we are likely to encounter in our professional life."

- Siddhartha Dhamija, India, MTech (EBAC), current student

## Graduate Diploma in Systems Analysis (GDipSA)

The Graduate Diploma in Systems Analysis (GDipSA) is a 13-month full-time programme – 8-month study and 5-month industrial attachment – designed to convert those who decide to switch from a non-IT industry to become IT specialists. Many of the earlier graduates have moved up the corporate ladder to become chief information officers and IT department directors in industries such as banking and finance, IT, logistics, manufacturing and transportation.

GDipSA Application and Enrolment



To-date, ISS has enrolled 39 intakes of GDipSA students. The 38<sup>th</sup> intake in February has an enrolment of 69 students selected from 177 applicants. Majority are from Myanmar (41%) followed by India (30%). The 39<sup>th</sup> intake in August received 198 applications and enrolled 78 students, predominantly from China (40%) followed by Myanmar (29%). 107 students from the 36<sup>th</sup> and 37<sup>th</sup> intakes graduated in May and November respectively.



(Above) Orientation for the GDipSA 38<sup>th</sup> and 39<sup>th</sup> intakes students on 5 February and 1 August respectively.



(Left) Kent Ridge Walk on 23 August for the 39<sup>th</sup> GDipSA intake students.

(Right) Juniors-Meet-Seniors Session took place on 27 August, when the three intakes (37<sup>th</sup>, 38<sup>th</sup> and 39<sup>th</sup>) of GDipSA students gathered under one roof for lunch and games.



## Internship

59 36<sup>th</sup> GDipSA intake students undertook 31 industrial attachment projects with 26 organisations, including BMW, CalendarOne, Keppel Land, Land Transport Authority, OCBC Bank, PayWhere, Philips Singapore, Resorts World Sentosa, etc. On the other hand, 48 37<sup>th</sup> intake students took on 28 projects with 25 organisations, which included Avanade, Integrated Health Information Systems, NEC, Wizlearn, etc.

### Accenture Best Internship Project Awards



The SA36 Accenture Best Internship Project was awarded to Sun Fang (left) for the “Bespoke Native IOS App for Enterprise Merchants”, an online store that he developed during his industrial attachment at PayWhere, using the TackThis social media platform. The other finalists were Sia Boon Leong and Huang Ying-Tzu. Sia developed the proof-of-concept for Land Transport Authority to test the viability of extending the HP Quality Dashboard to a mobile platform using cloud technology. Ying-Tzu was involved in a document migration project at NEC Asia Pacific, for the upgrading of the FileNet hosting server and database.

The SA37 Accenture Best Internship Project was awarded to a team of 3 students, namely, Nang Mai Ngin, Thet Paing Soe and Sai Saing Wann (bottom left). The team developed the “SAP Purchase Order and Service Entry Approval System” for Keppel Land, to cut operational costs and time in the approval process for purchase orders and service entry requests. The other finalists were Ashwin Kumar Madharam Venkata and Seint San Thandar Bo. During his industrial attachment at Land Transport Authority, Ashwin developed a new user interface architecture and a front-end single-page application for the passenger service machine used for the Downtown Line Stage 2 project. Seint San developed the Convergence Commerce project for PayWhere, by integrating the TackThis platform with modern tablet-based Point of Sales platforms so that enterprise merchants could more seamlessly manage their stocks and orders for both online and offline sales.

### Pioneering Scrum at Philips Singapore

Two GDipSA students, Kedhayomalakshita Harthachitramalogan (Lakshita) and Su Yee Myint, underwent their internship at Philips Singapore that made use of the Scrum knowledge that they freshly acquired from their coursework. For their internship project, they worked with the Philips’ team responsible for the iOS application behind Philips’ new InRange Bluetooth Smart Leash, an app-enabled device that alerts users when they leave personal valuables behind.

“The internship with Philips truly gave me a chance to apply what I’ve learned, and participate and contribute to a real project. The practical experience and the opportunity to assume the roles and responsibilities of being a Scrum team member have been invaluable,” said Lakshita.

“As both Lakshita and Su Yee came on board at the start of our project, they were treated just like one of us, growing and learning together as a team as the work unfolded. Team members also took turns to mentor and offer guidance, and both interns came well trained.” said Philips Singapore’s Software Section Manager, who was in charge of supervising the ISS interns.

## Tutor Club



Ruly Kurniawan (left) and Lavanya Sudharsanam (right), graduates of the 35<sup>th</sup> intake of GDipSA, set up a Tutor Club to help their juniors cope better with their studies. Using Facebook, the students could ask questions or share their difficulties anonymously, especially for those who were uncomfortable in revealing their identity. One of the juniors who benefited from the Tutor Club is Elizabeth Nang Mo Ngem from the 36<sup>th</sup> intake. "Tutors from the club have helped me to fully understand the concepts and logics of programming after lectures, as well as on how to tackle assignments and projects. I also got to know many seniors and widened my network in

the GDipSA community." Set up initially as a platform for academic coaching, the GDipSA Tutor Club is now serving a bigger purpose of connecting past and present students and as a source of general information on ISS matters.

## Students' and Graduates' Testimonials



"The lecturers at ISS were excellent in their willingness to go the extra mile, often providing information and tips which are sought-after in the IT industry. We also learned soft skills that are critical for the workplace. I truly enjoyed the GDipSA course and had my curiosity about IT systems fulfilled. I also gained the confidence to embrace my new career in a totally new and unrelated industry, thanks to all my lecturers."

- Adam Sia, Singapore, GDipSA intake 36. Business Process Analyst & Software Engineer, CrimsonLogic

"I chose the programme because the 13-month full-time course offers a practical approach, which I believe will empower me to effectively apply what I have learned and succeed in my prospective career. I am delighted to have followed my heart, as the hands-on approach, committed teaching staff with global industry experiences have helped me acquire cutting-edge IT knowledge and facilitated a comprehensive transfer of skills to my new role."

- Sharon Ho, Singapore, GDipSA intake 36. Consulting Manager, Ecquaria Technologies



"The duration of the GDipSA course attracted me to choose NUS-ISS. When people had to go through a 4-year bachelor's degree to gain IT knowledge, NUS-ISS provided the option of a 1-year fast track programme. The curriculum, which included a 5-month hands-on industry experience through internship, was certainly something to look forward to. Moreover, a graduate diploma from NUS is simply icing on the cake, owing to NUS' international standing."

- Caroline Sneha Pradha, India, GDipSA Intake 36. IT Business Consultant, IBM Singapore



## Professional Education

ISS offers professional development courses of 1 to 10 days, to train senior executives, middle managers and professionals in the amalgamated skills of business, technology and people. For the busy professionals, ISS offers a suite of blended learning courses that provides the convenience of learning in live classrooms and workshops that can be conducted in-house for the organisations, as well as online coaching and mentorship. ISS also offers complimentary half-day consulting services to participants who have attended ISS professional courses. The consulting will be useful at the project start-up phase when professional advice is most needed. To-date, ISS has trained more than 91,000 over the last 33 years.

ISS works with companies to take advantage of government funding schemes to offset their investment in staff development. Moreover, ISS lecturers are practitioners with an average of over 20 years of experience. They invigorate classes with industry-relevant case studies based on their rich consultancy and research experience, to bring value to clients by helping their employees put into practice what they learn at ISS.

## Multi-faceted Collaboration with Singapore Workforce Development Agency (WDA)

ISS continues to work strategically with the Singapore Workforce Development Agency (WDA), to offer courses aligned with the Singapore Workforce Skills Qualifications (WSQ) industry frameworks that cover skills to equip individuals with the know-how to perform specific jobs well.

The **National Infocomm Competency Framework (NICF)** was jointly developed by the Infocomm Development Authority of Singapore (IDA), Singapore Workforce Development Agency (WDA) and industry stakeholders in the Infocomm sector as a competency roadmap for Infocomm professionals to map out their career and skills development pathway. It is also a framework for employers to incorporate into their personnel management practices to better develop and assess the performance of their Infocomm staff.

The **Creative Industries Framework (CIF)** was a collective effort of WDA, Ministry of Information, Communications and the Arts (MICA) and its agencies, as well as industry stakeholders to address the evolving skills and manpower demands for the Creative Industries. The CIF covers 25 Creative Industries, which are broadly grouped into the Arts & Culture cluster, the Design Cluster and the Media & Communications cluster.

The **Service Excellence Competency Framework (SVCF)** provides a whole-of-company roadmap for organisations to create and define their desired service experience through building organisational capabilities for innovation and productivity. The SVCF focuses on 6 capability areas: leadership, planning & process, people, customer experience, information & result, and service innovation.

The **National Infocomm Competency Framework – Immerse, Grow, Navigate in Infocomm Technology with Eloquence (NICF-IGNITE)** programme by WDA aims to assist organisations to recruit and develop new Infocomm employees – individuals who are looking to switch professions to join the Infocomm sector or take on different job roles within the Infocomm sector. Eligible organisations can receive funding from WDA to defray the costs involved in bringing the employees up to speed, which includes NICF course fee funding support and training allowance.

## Professional Courses

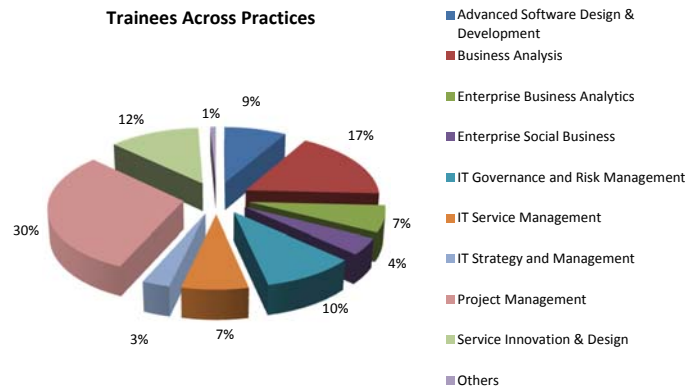


To-date, ISS has about 70 professional courses offered across 9 practices, comprising courses aligned with NICF, CIF, SVCF as well as non-WSQ courses.

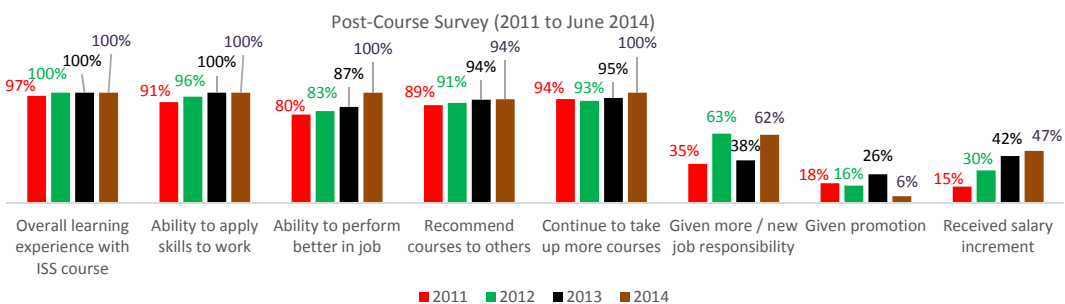
- **Advanced Software Design and Development:** Offers courses in software engineering practices and frameworks to build competency in Java technology, Agile software development and Cloud Computing.
- **Business Analysis:** Enables business managers and IT professionals to effectively exploit the power of IT in response to ever-changing business needs and business competitiveness.
- **Enterprise Business Analytics:** Provides a training roadmap for individuals and companies to gain insights into the latest trends and reap tangible benefits of business analytics.
- **Enterprise Social Business:** Develop skills to kick-start social business initiatives in enterprises, leveraging on social media for sales and marketing, customer engagement, collaboration and crowdsourcing.
- **IT Governance and Risk Management:** Imparts best practices and sound implementations of information security, IT business continuity management, IT assurance and project delivery risk management, to minimise business risk associated with the use, ownership and operations of IT within enterprises.
- **IT Service Management:** Conducts a suite of courses to equip IT professionals with the knowledge and competencies in ITIL®, covering foundation, intermediate, advanced and certification levels.
- **IT Strategy and Management:** Equips senior IT leaders with transformational vision and strategic direction to manage change while anchored to sound business outcomes to deliver value from IT expenditure.
- **Project Management:** Provides a series of courses geared to build the necessary skills to enable IT professionals and user executives to undertake project management role effectively, empowering them with best practices and frameworks to deliver innovation and results.

- Service Innovation and Design: Conducts courses, seminars and conferences for different levels and industries to help participants design innovation strategy and process to achieve organisational goals.

In 2014, 5,146 have been trained under the professional courses. IT project management courses remain in highest demand. The top 5 most popular courses were NICF- Certified ScrumMaster, NICF-PMP for Project Managers, NICF- Business Process Reengineering, NICF- ITIL® Foundation Certificate in IT Service Management, and WSQ Extreme Innovator.



The Post Course Survey (Jan-Jun 2014) showed that ISS training had positive impact on the companies' quality of service and products, work productivity and business costs. However, the courses did not seem to impact the companies' sales and productivity. 100% of the trainees responded that they were able to apply skills to work and perform better in job, and would continue to take up more courses. 94% would recommend the courses to others. Nearly two-third (62%) were given more/new job responsibility, whereas nearly half (47%) received salary increment and 6% were given promotion.



## Participants' Testimonials



Low Wai Mung (leftmost in the photograph), IT Deputy General Manager of Pacific International Lines Logistics, turned to ISS for help to jump-start his Agile project team. After attending the **NICE- PMI Agile Certified Practitioner (PMI-ACP)® Preparatory Course** himself, he sent his staff to attend the subsequent runs of the course, and tapped on ISS resource pool when his team embarked on the new Agile journey.

Andy Tan handles IT contracts and undertakes research, implementation and training of IT best practices at the Singapore Land Authority. Since graduating from the four-day **NICE- Certified Business Analysis Professional (CBAP®) Preparatory Course**, he found himself busily applying the business analysis skills and techniques acquired at work. He shared that the knowledge had helped him to propose the right business and technical solutions aligned to business requirements. "I've become more professional at gathering business requirements, and this drives the technical solutions when we address user's needs. It sets the basis for effective system implementation, complete with clear Return of Investment in terms of measured and perceived value," Andy said.

Hadi Candra, a Senior Systems Analyst with Senoko Energy, signed up for the **NICE- Business Analysis Fundamentals - Requirements Development** course to acquire insights on methodologies and techniques involved in the requirement gathering process to deliver efficient IT systems that improve business productivity. His exposure at the three-day course has bolstered his confidence to adopt more systematic measures to capture user requirements. "There are various approaches to the documentation process and I've learned to be more accurate so that my project or development team can better understand the requirements. It's about distilling the correct requirements and managing user expectations," Hadi disclosed.

Mohamed Haneefa Banisha, Assistant Vice President, Deutsche Bank AG, attended the **NICE- Certified ScrumMaster** course in August, and he has nothing but compliments for the course. "In my entire career, this was so far the best management course I have attended and I can easily tell that this is the best scrum (agile) master course/training available in the market today," he shared.

Zheng Hui Lin, a manager at Ministry of Manpower, enrolled for the **NICE- Online Community Management for Social Media** course to learn about community development and management. She found the knowledge learnt applicable and very relevant to Singapore context. In addition, she is full of praise for the lecturer. "The lecturer is very patient in explaining concepts, very diligent in compiling trade secrets tips that I would never know unless I attended his course. He is also very understanding and always tries to put himself in the shoes of the participants," she said.

Kenneth Choo, Systems Engineer at Singapore Petroleum Company, is one of the participants of the **NICE- Certified Information Systems Security Professional (CISSP®) CBK® Review Seminar** course. The concepts and best practices taught in the course covered a wide spectrum of topics on security, and he found the knowledge gained to be very relevant to his daily course of work. "The trainers are all very knowledgeable and experienced," he added.

Bernard Lok, an IT and Resource Executive at Boys' Town, attended five ISS' **IT Service Management** courses in 2014. Other than the high standards and quality of ITIL® framework, the competency of the lecturers was one of the main reasons he always turned to ISS for ITIL® training. "The trainer is excellent, and his interesting industry experience never fails to brighten up the classroom. The detailed

yet not boring explanations of key concepts help a lot in our absorption of the topics," Bernard disclosed.

Lau Cheng Meng, Application Design Lead, ExxonMobil Asia Pacific Pte Ltd, signed up for the **NICF- Software Testing** course to learn more about the principles, techniques, and practices of software testing. This 3-day course has proved to be beneficial to him as it accelerated his learning. "I've learnt the course topics that would have otherwise taken me a long time to learn on my own," he shared.

Oh Yingxiang, Engineer at DSTA, attended **NICF- Digital User Experience Design** in October to learn the principles and techniques in designing good user experience in software applications. He found the course to be engaging, thanks to the "good blend of theory and workshop activities".



Chudgar Nirav Chandrakant, an independent consultant, enrolled for the **NICF- Certified Enterprise Architecture Practitioner Course** to prepare himself for the TOGAF certification examinations. However, he gained far more than that. "This course has not only prepared me for the TOGAF Certification but also opened doors to more interesting, challenging and rewarding career opportunity. I have attended many professional and certification courses during my professional career

but this course was by far the best and most enriching experience," he emphasised.

Jackson Neo, a lecturer at Nanyang Polytechnic, attended the March run of the **NICF- Customer Analytics** course. What he learned from the course has been useful to him at work as he shared that "the techniques taught are highly relevant and applicable."

Ser Yuanbin, Project Manager at ACP Computer Training and Consultancy, signed up for the **WSQ Implementing Design Thinking** course to gain a better understanding of the tools and techniques in the core stages of the design thinking process. He thoroughly enjoyed the highly experiential approach ISS took. "The field trip is interesting and it looks into real-life problems and how to solve them," he disclosed.

Keri Wiroprabowo, Manager at Bank Indonesia flew from Jakarta to Singapore to attend the **NICF- Strategic IT Planning** course in November 2014. "The course covers simple and applicable methodologies and good case studies!" he shared.

Francis Ng was one of the participants of the **NICF- Enterprise IT Governance** course. The knowledge gained at the three-day course has bolstered his confidence. "The course provided a good guide and framework for IT governance in an organisation. It strengthens and formalises what I experienced in the real world - being thrown in from the deep end of the pool," he disclosed.



## IGNITE (Immerse, Grow, Navigate in Infocomm Technology with Eloquence)

ISS offers training courses that qualify for NICF-IGNITE (Immerse, Grow, Navigate in Infocomm Technology with Eloquence) funding. This programme, conceptualised by WDA to provide a pipeline of job-ready Infocomm workers, is an apprenticeship scheme that comprises a structured training component coupled with an on-the-job component with an employer, to allow contextualised learning for new or inexperienced Infocomm employees who can get up to speed quickly with the necessary knowledge and skills to do the job well. The NICF-IGNITE adopters were CrimsonLogic, Ecquaria Technologies, Greenfossil, International Skill Verification Services, JustLogin, and PSA Corporation. The 10 candidates that underwent training in the NICF-IGNITE programme made up of 6 software developers, 2 project leads and 2 test engineers.

The NICF-IGNITE programme has benefitted the SMEs and NSmen transiting into Infocomm career. JustLogin's CEO, K.C. Kwa said, "It's a good way for SMEs like us to attract new staff and tap into some government support as we equip them with the relevant skills and knowledge." As for Joshua Tan, an infantry officer prior to joining JustLogin, the chance to acquire new insights on NICF Cloud Economics & Technology and Software Testing has boosted his confidence in joining the competitive Infocomm sector. "As a software programmer, it's important to hone my skills and stay up-to-date with Infocomm developments. The training courses at NUS-ISS have helped me to understand and apply best practices, and I can now relate on a deeper level to my role at work."

Ecquaria Technologies' HR Manager, Jennifer See, said, "The NICF-IGNITE programme has enabled us to equip our new recruits with the necessary skills, while boosting their confidence to perform in their jobs. The training has definitely given our new staff a strong head-start, and this has enabled them to assume greater responsibilities and be better prepared for challenges in a fast-changing landscape."

## Customised Training

In 2014, ISS conducted customised training for about 600 employees of 18 companies, in the areas of advanced software design and development, business analysis, enterprise business analytics, IT service management, IT strategy and management, project management, and service innovation and design.

Some organisations which ISS had conducted customised courses for included:

- CapitaLand
- Infineon Technologies Asia Pacific
- Integrated Health Information Systems
- JTC Corporation
- People's Association
- PSA International
- Singapore Airlines
- Singapore Police Force

Staff of a major banking institution that had completed the WSQ Extreme Innovator workshop had this to say:

"The course encourages innovation and thoughts on processes." - *Gregory*

"The course is interesting and practical. Facilitators are able to use analogies and examples that apply to real-life scenarios happening in the bank." - *Sally*

"At the course, I've picked up tools that I can use to apply to solving issues at work." - *Sylvia*

## Consulting Services

ISS co-develops and implements a train-and-mentor model with the customer, in order to impart the relevant knowledge and skills to the employees, such that the customer will be able to successfully operate on its own thereafter.

In 2014, ISS provided consulting services to customers such as Exploit Technologies Pte Ltd, EZ-Link Pte Ltd, Housing & Development Board, Infocomm Development Authority of Singapore, Khoo Teck Puat Hospital, Singapore Police Force, Singapore Pools (Private) Limited, United Overseas Bank Limited, and Y3 Technologies Pte Ltd. Some of the consulting areas included business process re-engineering, enterprise architecture collaborative engagement, platform and system architecture, product management, service innovation, software architecture, and technology planning advisory.

### Alexandra Health System Care Transformation Initiative



*Mr Liat Teng Lit (left), Group Chief Executive Officer of Alexandra Health System (AHS), holds the strategic overview of the AHS cluster, and is a key member of the steering committee and Mr Khoong Chan Meng (right), Director-Designate, ISS, a key member of the project team delivering the transformation programme.*

Khoo Teck Puat Hospital (KTPH) in Yishun is a 590-bed acute care hospital managed by Alexandra Health System (AHS), a regional healthcare system in the north of Singapore island. As part of an integrated healthcare group to serve the community, AHS will build and oversee the Yishun Community Hospital, Admiralty Medical Centre in the Kampung Admiralty, and Woodlands Integrated Healthcare Campus, to be progressively ready by 2022.

KTPH adopts an innovative and design thinking approach to create solutions and processes with patients at its core. Even then, KTPH – the first acute hospital under the AHS cluster – encounters challenges similar to those of other large hospitals, as Singapore faces the impact of an ageing population and the rising burden of chronic diseases.

ISS is a strategic partner of AHS in tackling these challenges. In 2014, ISS facilitated a comprehensive envisioning process with AHS to set the direction of a business transformation programme. Over the following year, ISS will collaborate closely with AHS to streamline care processes and information flow to reimagine the care model across the cluster, with the ultimate aim of transforming healthcare delivery.

Mrs Chew Kwee Tiang, CEO of KTPH, said “Patients come to us with increasingly complex and chronic conditions, which makes healthcare provision more complicated. Our leaders and our teams must be on our feet thinking continuously how to hone the way we deliver healthcare to meet our patients’ needs. We have to be role models for our community and start to engage residents to be pre-emptive in managing and co-owning their health issues. We recognise that to have good outcomes, we must make continuous improvements and look far ahead. I look forward to continuing our collaboration with ISS to create a sustainable system that will make a difference to our patients and our community.”

## Exploit Technologies' Business Process Re-engineering (BRP) Initiative

Exploit Technologies Pte Ltd (ETPL) is the technology transfer arm of the Agency for Science, Technology and Research (A\*STAR) in Singapore. One of the key roles it plays includes evaluating the technology disclosures from all the 21 research institutions within A-STAR community. The evaluation process typically will encompass deciding on the best mode of protection for the intellectual property disclosed, and the subsequent follow-on patent management and its complete lifecycle. The other key role ETPL plays is to commercialisation of A\*STAR's intellectual property, and one of the modalities of transfer of technologies to the industry is through licenses.

With the increased number of research output from the research institutions and the projected increase in licensing deals from industry, ETPL initiated its BPR programme with the objective to "Do more with the *same* (number of people); Do the same *faster*, and Do things *better*". NUS-ISS was engaged in March 2014 to be part of this programme.

The entire project took about 6 months, where the entire end-to-end processes for the IP Management and Commercialisation processes were mapped out. This was then followed by detailed analysis to streamline the processes using a three-thronged approach.

- From the *process* perspective, we identified all the bottlenecks, repetitive and non value-adding activities, etc. We also harmonised the processes of two divisions who are handling identical functions but across two different industries.
- From the *people's* perspective, we provided training to a core group of process owners with the skillset to map business processes, identify opportunities for improvement and generate new ideas to improve the processes.
- From the *technology* perspective, with the help of a future IT system that ETPL will be implementing, ETPL will be able to achieve real-time visibility of operations, auto-routing and prompting of tasks and reminders, and a management dashboard that will facilitate proactive planning and decision making by the management as well as each individual officers.

Mr Yu Chen Kuang, Member of the IT Strategy & Management Practice at ISS, and the lead consultant for this project says, "This project has been a smooth and successful one, thanks to the very strong support from the senior management. The Chief Executive (CE) of ETPL, Mr Philip Lim, being the executive sponsor, personally chaired all the steering committee meetings for this programme. We were also fortunate to have a great BPR core team led by Mr Liew Hui Ming (Vice President, Planning, Innovation Network & Enterprise Division), together with highly committed process owners from the various divisions, who participated pro-actively in all phases of the project despite their heavy workload.

Hui Ming of ETPL concludes, "We are very satisfied with NUS-ISS and the result of the BPR. For the first time we have a complete end-to-end of our core business processes. We have also now a core BPR team that knows how to modify and fine-tune the processes moving forward without the need for an external BPR consultant. The BPR produces a very clear business blueprint of what we want for our new IT system. We can now take the process implementation together with IT, at a high level of confidence and clarity."

## e-Government Leadership Centre (eGL)

The e-Government Leadership Centre (eGL) was established on 1 August 2006 by IDA together with ISS and the NUS Lee Kuan Yew School of Public Policy (LKYSPP). The purpose was to share the knowledge and lessons learnt in Singapore e-Government with foreign government participants, so as to accelerate the achievement of development goals in their respective countries. Its key objectives are:

- To provide e-Government leadership education for Whole-of-Government transformation.
- To work with the Governments to develop and deliver Capacity Building initiatives.
- To conduct research and provide thought leadership on use of technology for public service excellence.
- To provide advisory services on e-Government.

The eGL customises lectures, site visits and workshops to provide relevant strategies, frameworks and best practices based on the needs of the foreign delegates. The programme facilitates active discussions amongst the participants, creating a stimulating environment for them to learn from one another. Not only does it enrich the curriculum content, the exchange of ideas also spurs the participants into action.

To-date, the eGL has engaged more than 3,000 government officers from 133 countries. In 2014, 319 participants were trained by the eGL. Its delegates came from around the world, including South Asia, Greater China, ASEAN countries, Africa and The Cooperation Council for the Arab States of the Gulf (GCC).

In July, the eGL signed a Memorandum of Understanding (MOU) with the Myanmar Computer Company Ltd to collaborate on e-Government training, research and capacity building. The eGL also worked as an advisor for a project with KPMG Services, on "Review of ICT Capacity Building in Academic Institutions" in Myanmar. The project commenced in March.



The eGL hosts delegations coming from all over the world:

- Dr Khalifa Abdullah Hamed Al Barwani, Chief Executive Officer, and delegates from Oman National Center for Statistics and Information (20 February);
- Delegation led by Dr Tuvshintur, Director of Mongolia IT Park (21 February);
- Delegation from Central Bank of Nigeria (28 February);
- Botswana Investment and Trade Centre delegation (10 March);



- Delegation led by Mr Ksenia Vlasova, Head of Education and Development Division at the Department of Civil Service Personnel Directorate, Moscow Government (28 March);
- Delegation led by Mr Denis F. Villorente, Deputy Executive Officer, ICT Office, Department of Science and Technology, Philippines (24 April);
- Myanmar's MOU partner, Myanmar Computer Company Ltd, Mr Tin Win Aung (9 May);
- Ms Rabaa Yousuf Al Hamed, Head, Personnel Affairs, ictQatar (19 June);
- Ms Ontlametse Mokopakgosi, Deputy Permanent Secretary, Ministry of Health Botswana jointly with IE Singapore (29 August);
- Bangladesh delegation, Mr Shyam Sunder Sikder, Secretary, ICT Division and Mr S.M. Ashraful Islam, Executive Director, Bangladesh Computer Council (25 September, 1 December);
- Mr Waheed Malek, ICT Vocational Training Senior Specialist, ictQatar (1 October);
- Honourable Minister, Mr Lalbabu Pandit, Ministry of General Administration (28 October);
- Advisor to Government of Andhra Pradesh (e-Government, Electronics and IT) Mr J. Satyanarayana (14 November);
- Dr Susheela Venkataraman, Principal Director, Office of Information Systems and Technology, Asian Development Bank.

## Delegates' Testimonials

### MFA Developing e-Government Strategies Programme

"The subjects covered during the presentations were relevant and significant for the development of e-Government strategies. The instructors were also able to present case studies relating to the subjects they were presenting, to indicate the practicability of the theories they were presenting and further demonstrate how other governments have benefitted from them."

- Goodwill Bhekie Matsebula, Senior Policy Analyst, Swaziland e-Gov Unit

"Instructors were all very practical and innovative in delivering the modules. The concrete and real life experiences shared in driving home the subject is amazing and will remain with me always as it is easy to remember things with practical illustrations."

- Margaret Maryamu Asoka, Chief Programme Officer, Ministry of Foreign Affairs, Nigeria

"The course was very interactive. It provided participants with the much needed platform to learn from one another's unique experience in e-Government programme implementation. We had serious fun as we engaged in the new learning seriously. The course designers included the critical topics – those at the centre of e-Government programme implementation – as if they had consulted the participants when designing the course programme."

- Steyn Berejena, Deputy Director, Office of the President and Cabinet, Zimbabwe

"This is a nice course which really equips the participants/candidates with all the skills and knowledge in specific areas of the e-Government framework."

- Brian Mchawi, Chief Analyst, Department of e-Government, Malawi

### *CIO Training Programme on Strategic Management of IT*

"The course structure is perfect and very educational. All the instructors are well qualified, experienced and dedicated in their work. The best part is we got the opportunity to meet and work together with people from all parts of the world."

- Bachu Nono, Info Tech Department, Royal Bhutan Army

"I have learnt a lot from this programme. I know how to manage projects, re-engineering of business and the role of CIO now. It will help me to apply some of the models to solve problems."

- Bah Foday, Manager, e-marketing/IT, IT Department, Gambia Tourism Board

### Maldives' National Center for IT (NCIT) Chief Information Officer returned to eGL

Mr Shareef, Chief Information Officer of Maldives' National Center for IT (NCIT), was at eGL 10 years ago under the MFA's Singapore Cooperation Programme. This time, he came to eGL for the latest insights on e-Government strategy development. He said, "Singapore is a real leader in e-Governance. The opportunity here at eGL is just so different from other programmes. For example, we learned from experienced practitioners – lecturers with public service background, and veterans who understand the implementation challenges when they teach conceptual frameworks. Putting theories together with industry knowledge – that's what I liked about the whole experience." Mr Shareef was also delighted with the opportunity for cross-learning. "While I learned from Singapore's e-Government journey, I also exchanged notes with CIOs from 32 participating nations through the workshops and informal sharing. We've all come away with something we'll never find in management textbooks."



The Ministry of Foreign Affairs (MFA) has reappointed eGL to conduct its sponsored training programmes for overseas developing countries, a recognition of its excellent track record. One of the programmes was a 10-day course on "Developing e-Government Strategies" conducted from 24 February to 7 March for 33 senior officials from 32 countries. In May, the eGL conducted an MFA training course for 25 participants from Oman, in the area of "e-Government Leadership: Towards

Public Service Excellence”, and yet another course on “Chief Information Training Program on the Strategic Management of IT” in October.

IE Singapore is another key partner for the eGL. In May, IE Singapore invited the eGL to lead ICT mission trips to Botswana and South Africa, to conduct a 3-hour session on Public Service Transformation. IE Singapore was also a sponsor for the APEC TEL Workshop & 9<sup>th</sup> IAC Forum on 16-17 June.

In November and December 2014, the eGL conducted two classes in Singapore for the Bangladesh Computer Council. It was a 10-day course on “e-Government: Public Service Transformation”, attended by 40 government officials, including Joint Secretary, Additional Director General, Director and others from the ICT Division, ICT Directorate, Bangladesh Computer Council, and Bangladesh Hitech Park Authority. Also in November, the eGL conducted a 4-day seminar in Singapore on “e-Governance Excellence in Healthcare and Education” for senior officials from Kuwait.

Furthermore, eGL continues to strengthen collaboration with IDA International (IDAI). Particularly, eGL and IDAI conducted a 1-day senior executive seminar and a 3-day course on e-Government Smart City at Zhu Hai, China, attended by a total of 140 government officials. In October, the eGL worked with NCS Suzhou to conduct a training workshop on “e-Government: Open Data”. This session was attended by 30 government officials from Wuxi, China.

Fulfilling its role to develop the indigenous Infocomm industry, the eGL opens door for the local companies to meet with the overseas delegates. For example, the eGL brought 33 delegates to Ecquaria Technologies and another 24 to SQLView to pursue potential business opportunities. In October, the eGL organised a networking tea session for the Infocomm industry. Power Automation, ST Electronics, SQLView, Ecquaria Technologies and IE Singapore were invited to the session to mingle with the delegates.

eGL has also fostered close working relationship with institutions such as Asian Development Bank (ADB), The WorldBank, United Nations Development Program (UNDP) and Temasek Foundation.

## Applied Research

ISS undertakes applied research with government agencies and partners in the interdisciplinary areas of e-government, enterprise architecture, service innovation and technopreneurship.

In 2014, ISS teaching staff contributed 6 research papers for publication in international journals, conferences and book chapters; 4 papers were accepted:

1. Esther Tan (Mar). "A Study of Social Interaction during Mobile Information Seeking", *Journal of the Association for Information Science and Technology*, 2014.
2. Ouh Eng Lieh, Stan Jarzabek (Jul). "Understanding Service Variability for Profitable Software as a Service: Service Providers' Perspective", *26<sup>th</sup> International Conference on Advanced Information Systems Engineering (CAiSE) 2014* Forum Poster Paper, page 9-16.
3. Carol Hargreaves (Nov). "Estimation of CO2 Emission from Marine Traffic in Singapore Straits Using Automatic Identification Systems Data", *5<sup>th</sup> International Conference on Environmental Science and Information Application Technology (ESIAT) 2014*.
4. Stuart Smith (Dec). "Drivers of Innovation in Singapore's Financial Services Sector: An Exploration with Practitioners", Chapter Contribution to Book *A. Mention & M. Torkkeli (Eds.), Innovation in Financial Services: A Dual Ambiguity*, page 32–42.

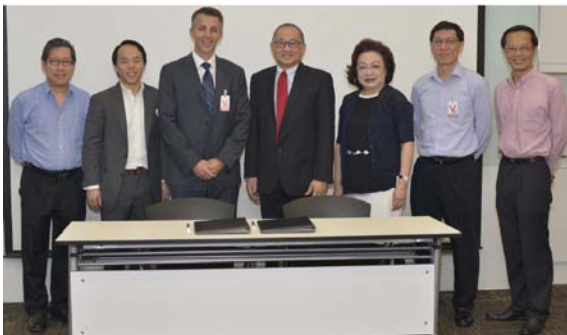
ISS also conducts quantitative surveys, qualitative interviews and focus group discussions. Some of them include:

1. Dickson Tsui (Jan). "Hong Kong's Commuters' Attitudes towards Car", *Pico*.
2. Guo Lei, Stuart Smith (1 Feb). "Case Study on User Experience Design", *Infocomm Development Authority*.
3. Tan Tzann Chang (10 Feb). "Case Study on School Standard Operating Environment", *Infocomm Development Authority*.
4. Swarnalatha Ashok, Jagadeesh Balakrishnan (10 Feb). "Case Study and Research on Agile", *Infocomm Development Authority*.
5. Virginia Cha (10 Feb). "5 Innovation Practices", *Infocomm Development Authority*.
6. Daniel Boey, Felicitas Seah, Richard Tan, Tan Liong Choon, Lee Boon Kee (on-going). "Factors Influencing Project Success and Failure", *ISS Project Management Survey*.
7. Goh Boon Nam, Leon Chia (on-going). "Survey on Internal and External Use of Social Media Practices", *Enterprise Social Business Survey*.



## Research Collaboration Agreement with Harvard Behavioural Insights Group (BIG)

7th October 2014 marked a milestone in LTA's research journey towards greater understanding in mobility behavioural research, as LTA signed a research collaboration agreement with the Behavioural Insights Group (BIG) of Harvard University.



*Agreement signing: From left to right: Lim Swee Cheang (Director & CEO, NUS-ISS (Apr 1998 to Feb 2015)), Daniel Lim (Raymond Vernon Fellow, BIG), Michael J. Hiscox (Clarence Dillon Professor of International Affairs, Harvard), Lew Yii Der (Group Director Corporate Planning & Research, LTA), Rosina Howe (Group Director Innovation and InfoComm Technology, LTA), Khoong Chan Meng (Director-Designate, NUSISS), George Sun (Deputy Director Research & Publications, LTA)*

As part of this research collaboration, LTA will be working closely with Harvard BIG and the NUS Institute of Systems Science (ISS) on an experiment designed to determine the influence of public service messaging in encouraging commuters to shift their travel to the off-peak period. The field of mobility behavioural research is one that is increasingly important as we strive towards our goal of providing a more commuter centric public transport experience and this could very well be only the first step in a fruitful and mutually beneficial research collaboration between LTA and Harvard.

Some of the mobility behavioural applications already implemented in Singapore include the Electronic Road Pricing (ERP) scheme, the 'Thoughtful Family' campaign which aims to promote graciousness on public transport and other "social experiments" like buskers performing at train platforms, elaborately-decorated themed carriages and staff clutching stuffed toy flowers and giving out tissues to welcome commuters to make commuters' train journeys a little more enjoyable while infrastructure upgrading and service improvements are underway.



'Thoughtful Family' Poster



Football-themed Cabin during World Cup 2014

*This article was first published in LTA Academy Newsletter, December 2014 issue.*

## Events, Seminars & Speaking Engagements

ISS is respected for its vast spectrum of expertise, ranging from leadership to technology to innovation. Hence, ISS staff are often invited to local, regional and global events to speak on topics such as Agile development, cloud computing, e-Government, enterprise architecture, service innovation, social media and technology entrepreneurship.

Our teaching staff and management team speaks widely at industry events locally and overseas. *(See Annex C for a list of our speaking engagements)*

We organise regular innovation and technology update seminars to keep our customers and the public current. In 2014, there were over 20 seminars and events organised and more than 1,600 participants benefited from our sharing. ISS also actively participates in external industry events such as conferences, workshops, forums and exhibitions to promote its programmes and services, share its knowhow and create corporate mindshare. *(See Annex D for a list of our events)*

You can also count on our Communities of Practices (Enterprise Architecture and IT Service Management) to learn from others in the industry. These are good networking platforms to extend your reach and expand your knowledge.

### Events and Seminars in 2014

<u>JANUARY</u>	<u>FEBRUARY</u>	<u>MARCH</u>	<u>APRIL</u>
16 <sup>th</sup> : Enabling Mobile Enterprise	19 <sup>th</sup> : In Conversation with Tim Brown, IDEO CEO  27 <sup>th</sup> : The Value of Visualisation	4 <sup>th</sup> : IBM SolutionsConnect 2014 – A New Era of Smart  10 <sup>th</sup> & 13 <sup>th</sup> : Singapore Design Week  13 <sup>th</sup> : ISS-IIBA SG Seminar: Agile Business Analysis, User Experience Design and You  18 <sup>th</sup> : 7 <sup>th</sup> ACoP Forum – Technology Architecture: Creating a Solid Foundation for Business Agility and Growth  21 <sup>st</sup> : itSMF Singapore Annual Conference 2014	1 <sup>st</sup> : ThoughtWorks-ISS Quarterly Technology Briefing on Agile Analytics  11 <sup>th</sup> : Facebook: We Like You, We Like You Not  24 <sup>th</sup> : 2 <sup>nd</sup> ITSM CoP Forum – Major Incident Management: A Case Study

<u>MAY</u> 9 <sup>th</sup> : Analytics for Enhanced Customer Experience 27 <sup>th</sup> : Seminar with CapitalLand: Service transformation through Customer Experience Design and Management	<u>JUNE</u> 12 <sup>th</sup> : ISS-IBM Seminar: Supply Chain Innovation and Analytics through IBM Case Studies 16 <sup>th</sup> & 17 <sup>th</sup> : APEC TEL Workshop & 9 <sup>th</sup> IAC Forum 18 <sup>th</sup> : ISS-CSC Roundtable on Service Delivery & Transformation for the Digital Citizen 19 <sup>th</sup> : Service Innovation in Infrastructure: How Digital & Design Can Change the Game 20 <sup>th</sup> : Using Service Innovation to Overcome Workforce Challenges	<u>JULY</u> 15 <sup>th</sup> : 8 <sup>th</sup> ACoP Forum – Organisational Excellence and Enterprise Architecture 18 <sup>th</sup> : Agile Software Development: Swift and the Shift 25 <sup>th</sup> : ISS-UXC Seminar: Move IT from Cost to Value Centre using IT Service Management and COBIT 31 <sup>st</sup> : ISS-IBM Seminar: A Measure of Social Media Analytics	<u>AUGUST</u> 8 <sup>th</sup> : 3 <sup>rd</sup> ITSM CoP Forum – A Journey of Introducing ITIL in the Singapore Office of a Japanese MNC: Practical Considerations
<u>SEPTEMBER</u> 17 <sup>th</sup> : ISS-Cloud Sherpas Seminar: Using Cloud & Wearable Technologies to Transform Customer Service 23 <sup>rd</sup> - 25 <sup>th</sup> : GovernmentWare / SecureSingapore 2014 30 <sup>th</sup> : Digital Marketing for Sustainable Growth	<u>OCTOBER</u> 30 <sup>th</sup> : ASME Business Symposium 2014 31 <sup>st</sup> : How Analytics is Transforming Healthcare	<u>NOVEMBER</u> 6 <sup>th</sup> : ITMA 20 <sup>th</sup> IT Best Practices Seminar 11 <sup>th</sup> : Service Excellence in the Omni-channel Era 11 <sup>th</sup> : 9 <sup>th</sup> ACoP Forum – Operationalising Enterprise Architecture in the Real World: Drawing Lessons from NEHR and MIT 12 <sup>th</sup> – 14 <sup>th</sup> : Agile Singapore Conference 2014	<u>DECEMBER</u>

## Partners



APM Group recognised ISS as an Affiliate for NICF- COBIT®5 Foundation course and examination

Association for Information and Image Management (AIIM) licensed ISS to deliver the NICF- AIIM Business Process Management Master course

Association of Information Security Professionals (AISP) appointed ISS to develop and deliver the NICF- AISP Qualified Information Security Professional course and examination

AXELOS accredited ISS as an Affiliate for ITIL®, NICF- Managing Successful Programmes (MSP®), NICF- PRINCE2® (PProjects IN Controlled Environments) – Foundation and Practitioner Certificate and NICF- Portfolio, Programme and Project Offices (P3O®)- Foundation & Practitioner courses and examinations

Blackblot® partnered with ISS to deliver the NICF- Strategic Product Manager™ course

CMMI® Institute of the Carnegie Mellon University licensed ISS to deliver Capability Maturity Model Integration (CMMI®) training, consulting and appraisal services

GoodAgile delivered the NICF- Certified ScrumMaster course in Singapore through ISS

Havas Media co-delivered the NICF- Social Media for B2B, NICF- Social Media Marketing and NICF- Social Media Analytics courses with ISS

Infocomm Development Authority (IDA), NUS Lee Kuan Yew School of Public Policy and ISS jointly set up the e-Government Leadership Centre (eGL) located at ISS

International Information Systems Security Certification Consortium ((ISC)²®) appointed ISS as the exclusive training provider in Singapore to deliver the NICF- Certified Information Systems Security Professional (CISSP®) CBK® Review Seminar and NICF- Certified Secure Software Lifecycle Professional (CSSLP®) CBK® Education Program and examinations

International Institute of Business Analysis (IIBA) endorsed ISS' NICF- Certified Business Analysis Professional (CBAP®) Preparatory Course

Project Management Institute (PMI®) appointed ISS as the Global Registered Education Provider to deliver the NICF- PMP® For Project Managers course

Revolution Analytics and ISS partnered to deliver courses on CloudR technology

Scrum Alliance licensed ISS to conduct the NICF- Essential Practices for Agile Teams course



**Singapore Computer Society (SCS)** appointed ISS to conduct NICF- Certification in IT Project Management (Associate) Course, NICF- Certification in Outsourcing Management for IT (Associate) Course, and Certification in IT Business Continuity Management, and administer the qualifying examinations

**Tableau** and ISS partnered to deliver courses on Analytics

**The Open Group** licensed ISS to provide consulting services on The Open Group Architecture Framework (TOGAF®)

**ThoughtWorks** and ISS jointly organise seminars and deliver NICF- Agile Continuous Delivery course

**UXC Consulting** delivered NICF- COBIT® 5 Foundation, ITIL®, NICF- Managing Successful Programmes (MSP®), NICF- PRINCE2® (PProjects IN Controlled Environments) and NICF- Portfolio, Programme and Project Offices (P3O®) certification courses and examinations in Singapore through ISS

**Singapore Workforce Development Agency (WDA)** appoints ISS to develop and deliver courses for National Infocomm Competency Framework (NICF), Design Thinking under Creative Industries Framework (CIF), and Technology-enabled service innovation under Service Excellence Competency Framework (SVCF)

## Career Services

### Career Coaching

From July 2013 to December 2014, 131 participants who attended the NICF courses were unemployed, of which 49 (38%) had found employment. During the period, 16 one-on-one transitional career coaching sessions conducted by private career coaches were organised for 44 unemployed participants. 20 (45%) of them had found employment.

For one participant, her last held position was a programme manager in IT pre-sales at a multi-national corporation. After working there for 15 years, she was retrenched due to restructuring. She decided that her next step would be to move to a business analyst role to deepen her domain knowledge. The coaching session helped her to re-focus her CV less on the technical projects but more on problem-solving, analytical and planning skills. Eventually, she found employment with MOH Holdings as an IT Project Manager.

For another candidate, she desired to become a consultant in the field of security operations or security management. However, this proved to be challenging as she was a stay-at-home mum and out of the workforce for 10 years. Hence, she lacked the latest knowledge and trends in this area. The coach assisted her to focus her CV on her strengths in project management, consultancy and IT security design, and gave her feedback on her interviewing skills to build self-confidence. As a result, she was able to find employment with NETS as a Data Security Consultant.

A third candidate, Danny Koh, had been exploring job openings in the Infocomm sector for a while already when he attended the NICF- ITIL® Foundation Certificate in IT Service Management course. Now a Senior Field Engineer with BT Global Services, he felt that the pointers he received from the ISS career coaching session had cut short his job search process. He summarised for all when he said, "I think it's wonderful how ISS and the Singapore Workforce Development Agency (WDA) have come together to provide career coaching for unemployed NICF course participant. I really urge those who qualify to take advantage of ISS career services."

## Career Fairs

Since 2012, ISS has been organising regular career fairs as well as taking part in partners' career events to help the unemployed trainees find jobs within the IT industry.

### 1 March: ISS Career Fair



About 15 companies participated at the ISS Career Fair, including Blue Ocean Systems, CrimsonLogic, Duration Singapore, Ecquaria Technologies, Employment and Employability Institute, Greenfossil, Green Thumb Consultancy, Hewlett Packard Singapore, IBM Ireland Product Distribution, NCS, NEO Innovation, Teamie, Telistar Solutions, ViSenze, and Zenith Infotech. In total, they offered 280 jobs. NCS offered the most job openings, followed by CrimsonLogic and Hewlett Packard Singapore. The career fair attracted 285 visitors seeking for employment, comprising mostly MTech students (135), members of the public (106) and GDipSA students (44). Based on an evaluation survey conducted at the Career Fair, on a scale of 1 to 5 (1=Poor, 5=Excellent), the recruiters and the participants gave an overall satisfaction rating of 4.0 and 3.8 respectively.

"The ISS Career Fair 2014 gave us a good networking opportunity with the candidates interested in both full-time and internship positions. The event helped us convey our job requirements to the applicants easily and hence made the selection process effective. Looking forward to next year's event!"

- Mr Ashwin Singh, Co-Founder & Chief Operating Officer, Teamie

"This is a good platform for an SME like ours to increase our visibility with the school and the students. The event format is effective and hassle free, and we have managed to speak with a few potential candidates. I will definitely participate again in future."

- Mr Seet Pheng Kue, Managing Director, Greenfossil

### 26 April: Career Development Talk for IT Professionals

Organised by Employment and Employability Institute (e2i) to provide insights on career pathways, trends, competencies and opportunities in the IT sector, the event attracted 40 IT professionals to attend. Swarnalatha Ashok, Chief of ISS Advanced Software Design & Development, was the Guest Speaker. The other panellists were from SoftSource Solutions and ST Electronics (Info-Security).

## Fun4Staff

3 March: ISS Annual Luncheon 2014 @ Novotel Singapore Clarke Quay



Over 45 guests (customers, partners, ISS Management Board members and adjuncts) and 60 staff gathered for ISS Annual Luncheon on 3 March to celebrate ISS' achievements and to appreciate the hard work and contributions of the staff.

24 October: ISS Staff Bowling Event @ West Coast Recreation Bowling Centre



ISS has some bonding time over a friendly bowling competition. The IT Services department emerged victorious in the competition, with the top overall score and top male bowler.

19 December: ISS Christmas Celebration

ISS staff gathered together for a feast at the Christmas tea party. Remembering those who are in need, ISS staff came together to raise a total of \$1,220 for the Children's Aid Society (Melrose Home). The donation was matched dollar-to-dollar as part of the SG50 initiative.



## Annex A: ISS Team

### Management Team

#### Senior Management

Khoong Chan Meng	Director & CEO
Lim Swee Cheang	Senior Advisor Director & CEO (Apr 1998 to Feb 2015)
Yum Hui Yuen	Deputy Director
Dr Leong Mun Kew	Deputy Director



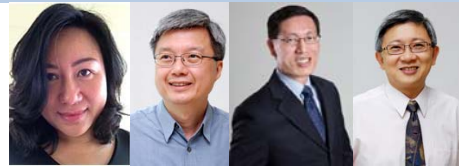
#### Singapore e-Government Leadership Centre

Ashok Kumar	Centre Director
-------------	-----------------



#### Practice Chief

Catherine Khaw	Intelligence Systems
Goh Boon Nam	IT Service Management
Khoong Chan Meng	IT Strategy & Management
Daniel Boey	Project Management



Stuart Smith	Service Innovation
Dr Leong Mun Kew	Software Engineering & Design
Gloria Ng	Startups & SMEs



#### Graduate Programme Chief

Dr Carol Hargreaves	MTech Enterprise Business Analytics
Charles Pang	MTech Knowledge Engineering Programme
Swarnalatha Ashok	MTech Software Engineering Programme
Dr Esther Tan	GDip Systems Analysis Programme





## Administration

Theresa Chan	Associate Director, Business Development
Tan Bee Leng	Associate Director, Finance
Mona Chee	Associate Director, Human Resource, Administration & Facility Management
Dolly Cheng	Associate Director, Marketing Communications
Shirley Sing	Senior Associate Director, Professional Studies Programme Operations



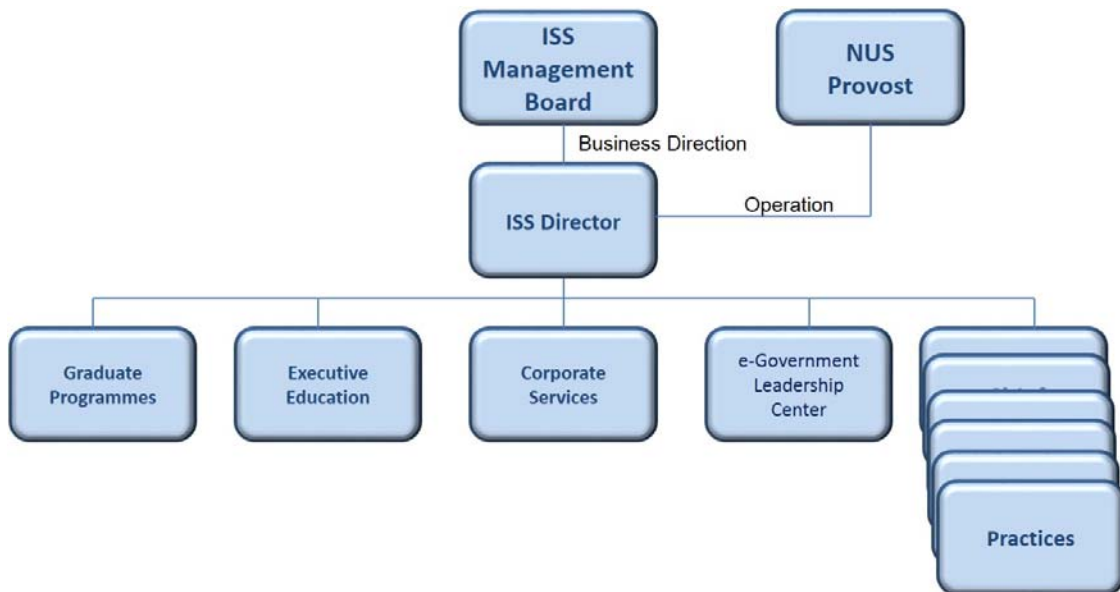
ISS has 53 full-time teaching staff members who are multi-disciplinary practitioners with cumulatively more than 1,200 years of working experience. A quarter of them possess PhDs, 55% with Masters, and the remaining with Bachelor qualifications. ISS also has a network of about 40 adjuncts from academia, industry and government organisations, to share their practical experience through courses, workshops and seminars. Another 42 administrative staff made up the ISS family of 95.



Dr Suriya Priya Asaithambi, Lecturer of Advanced Software Design & Development Practice, was conferred a "Doctor of Philosophy" from NUS School of Computing, based on her thesis "Variability Management and Traceability for Software Product Line Testing". Ouh Eng Lieh, also a lecturer of Advanced Software Design & Development Practice, is currently pursuing his Ph D at NUS in "Variability Management in Software-As-A-Service Models". Fan Zhenzhen of the Knowledge Engineering Practice chooses to specialise in "Computational Linguistics" at the Nanyang Technological University.

## Annex B: Governance

ISS operates within the NUS corporate governance framework, while functioning as an integral part of the NUS. The following diagram depicts the ISS Organisational Structure:



The ISS Management Board provides strategic guidance to ISS senior management. The terms of reference are:

- To advise ISS on strategic business direction;
- To review ISS programmes and products to ensure they meet the changing needs of the industry and help ISS establish strategies to remain innovative with a leading edge;
- To advise ISS on appropriate organisational and personnel policies to support its mission and strategy;
- To assist in establishing links with industry and leading institutions.

## Annex C: Speaking Engagements

### Local Events

#### 10 January: SCS Trends Seminar – Demystify Myths of Agile Development

Swarnalatha Ashok presented on “Riding the Agile Wave”, giving insights into the basic fundamentals of Agile methodology, values and principles, as well as demystifying the myths associated with Agile software development methodology. This half-day event, held at Singapore Computer Society (SCS), was organised by the SCS Certified IT Project Managers’ Chapter.

#### 13 March: CIO Conference 2014 – The Multi-Talented CIO: It’s not just about IT

Dr Leong Mun Kew was a subject matter expert facilitating a roundtable discussion on “Managed Cloud Services” at this conference held at Marina Bay Sands. He also participated in a heated debate when opinions were expressed on both sides to the question “Can Line of Business (LOB) managers take the place of a CIO?”

#### 14 March: IBM Smarter Industries Forum

Industry leaders convened at Suntec Singapore Convention Centre to discuss industry-wide strategies and industry-specific solutions aimed at accelerating transformation, driving competitive advantage, ensuring sustainability, and delivering greater value across industries. Lim Swee Cheang moderated a panel discussion on “Best Practices in Service Innovation” with panellists Mr Liak Teng Lit, Group Chief Executive Officer, Alexandra Health System; and Mr Paul Cobban, Managing Director, Customer Experience and Operational Excellence, DBS Bank.

#### 24 March: Banque Populaire and Caisse d’Epargne (BPCE) Study Trip

Ashok Kumar was a guest speaker to the French Embassy in Singapore, to share Singapore’s e-Government experience. It was part of the Banque Populaire and Caisse d’Epargne (BPCE) Study Trip under the United Business Institute France (UBIFRANCE)’s Executive MBA programme.

#### 1 April: 2014 Tan Kah Kee Young Investors Award

Dr Leong Mun Kew was a judge for this annual award that seeks to stimulate creativity among the young generation and to promote scientific and technological research in Singapore.

#### 22 April: FutureGov Forum Singapore

This forum held at Marina Bay Sands shared insights into government modernisation across regions, sectors and cities, where speakers came from Asia Pacific, Europe and America. The forum focused on “Transformation, Productivity, Innovation and Collaboration”. Dr Leong Mun Kew was a panellist to discuss “Massive Open Online Courses (MOOCs): Opportunities & Challenges”, and was also a subject matter expert facilitating a roundtable on “Classroom of the Future”.

#### 24 April: SSIA Emerging Growth Company Enterprise Summit 2014

This event at Marina Bay Sands was organised by Singapore Semiconductor Industry Association (SSIA). Dr Virginia Cha was the moderator for the panel discussion “Financing the Internet of Things”, to look at financing and commercialisation opportunities for IOT-focus companies.

#### 7 May: 3<sup>rd</sup> Annual Enterprise Innovation CXO Forum – Sparking Innovation and Managing Disruption

The event at The Westin Singapore targeted at 100 CXOs. Stuart Smith was a keynote speaker on “Helping your Firm Compete and Thrive in the Face of Constant Digital Disruption”.

#### 14-15 May: Next Bank Asia Singapore 2014

Stuart Smith conducted a 3-hour service innovation workshop at National Design Centre. The event targeted at 150 financial services professionals.

#### 22 May: Service Innovation: The Next Frontier

Dr Carol Hargreaves facilitated a mini-workshop on customer analytics at this conference organised by Marcus Evans Pan Asia, held at Grand Copthorne Waterfront Hotel, Singapore.

#### 27 May: IDA Industry Briefing 2014 – Infocomm Initiatives in the Public Sector

Lim Swee Cheang was the moderator for the panel discussion on accreditation.

#### 31 May: “The 15<sup>th</sup> Start-up@Singapore” Celebration of Singapore Future Entrepreneurs

Dr Virginia Cha and Tan Tzann Chang were respectively the State Judge and Moderated Judge for the Award Ceremony held at NUS University Town.

#### 4 June: IEEE Singapore Section Distinguished Lecture Series 2014

Dr Virginia Cha gave a lecture on “Making Sense of Big Shifts” organised by the Singapore University of Technology and Design.

#### 19 August: Mobile Government Evolution Forum 2014

Khoong Chan Meng spoke at this conference at Pan Pacific Hotel Singapore organised by Liquid Learning Group Pty Ltd.

#### 21 August: 16<sup>th</sup> Annual SMEs Conference and 17<sup>th</sup> Infocomm Commerce Conference – Transforming SME 1.0 to SME 2.0: Recalibrate, Reload, Renew

Lim Swee Cheang was the moderator for the panel discussion on “Faster, Cheaper, Better – Tech Makes It Possible” at this conference organised by Singapore Chinese Chamber of Commerce & Industry (SCCCI) at Suntec Singapore. This two-day bilingual event combined with the SME Expo was designed for and attended by 4,700 SMEs.

#### 21 August: CIO Summit 2014

The theme for the 2014 summit was “Transform to Deliver the New Value of IT”. Organised by CIO Asia and IDC, the event took place in various Asian cities. For the Singapore event held at Marina Bay Sands, Dr Leong Mun Kew was part of the negative team for the debate on “Internet of Things”.

#### 20 September: WDA Learning Fest 2014

Catherine Khaw, Senior Member of ISS Enterprise Business Analytics Practice, spoke at the Learning Fest organised by Singapore Workforce Development Agency held at Lifelong Learning Institute.

#### 7 & 9 October: National Productivity Month

At the National Productivity Month’s Launch Event Programme organised by National Productivity Board on 7 October, Stuart Smith participated as a panellist for the “Consumer Track: Shaping Consumer Behaviour for Enhanced Efficiency”. On 9 October, at the inaugural National Seminar on Productivity in Healthcare jointly organised by the Ministry of Health and Agency for Integrated Care, Stuart delivered a plenary lecture on “The Promises and the Pitfalls of Driving Innovation in Healthcare”.

#### 21 October: Asia’s Customer Festival 2014

Dr Carol Hargreaves spoke on “Tapping on data to influence the future of customer buying behaviour” at the event organised by Terrapinn.



### 10 November: SCS Seminar on Capability and Maturity Development for an Adaptive IT Enterprise

At the seminar organised by Singapore Computer Society (SCS) Quality Assurance Chapter, Gloria Ng talked about CMMI, the root of Capability and Maturity Models for the adaptive IT enterprises.

### 13 November: France-Singapore Innovation Days 2014

UBIFRANCE invited the eGL to present at the 5<sup>th</sup> France Singapore Innovation Days 2014. The forum featured about 60 speakers and 20 French companies, and was attended by 200 technology professionals who gathered for “IT Solutions to Improve Productivity and Competitiveness”. Ashok Kumar participated as a panellist for the e-government workshop to discuss “Productivity and e-Government in the Public Sector”.

## Overseas Events

### 11 March: CIO Conference 2014 – The Multi-Talented CIO: It’s not just about IT | Malaysia

This CIO Asia’s conference was held at InterContinental Kuala Lumpur, Malaysia. Dr Leong Mun Kew gave a presentation on “Thinking different is disruptive; otherwise it’s just technology”, and participated as a panellist in a discussion on “Appetite for Disruption”. He was also a subject matter expert facilitating a roundtable discussion on “Managed Cloud Services”.

### 3 April: ASEAN Communication Research Symposium | Thailand

The symposium was organised by Sukhothai Thammathirat Open University, Thailand, where speakers from Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore and Thailand discussed the possible communication plans and strategies for ASEAN One Community. Ashok Kumar spoke on “Citizen Engagement” at the event.

### 24 April: CIO Conference 2014 | Indonesia

At the conference held in Jakarta, Indonesia, Dr Leong Mun Kew shared his insights into “Thinking Different is the Gamechanger; otherwise it’s just technology”. He was also a panellist in a discussion on “Improving Business Performance through Application Performance”.

### 7 May: SATURN 2014 | USA

Organised by Software Engineering Institute (SEI) of Carnegie Mellon University, the SEI Architecture Technology User Network (SATURN) Conference took place in Portland, Oregon, USA. Ouh Eng Lieh presented on “Service Variability in Multi-Tenant Engineering: A Systematic Literature Review on the State of Practice, Limitations, and Prospects”.

### 17-18 May: 20<sup>th</sup> GCC eGovernment and eServices Conference | United Arab Emirates

Khoong Chan Meng was one of the two panellists for the discussion on “Measuring the GCC Region’s e-Achievements and e-Future Challenges in the Age of Smart City and Government”, and spoke on “From Smart Cities to Smart Nations: A Singapore Perspective” at this conference organised by Datamatix in Dubai, UAE.

### 26 May: ICT Mission Trip | Botswana

Ashok Kumar spoke on “Singapore e-Government Innovation for Public Service Excellence” during the ICT mission trip led by IE Singapore to Gaborone, Botswana.

### 29 May: ICT Mission Trip | South Africa

Ashok Kumar conducted a session on Public Service Transformation as part of the ICT mission trip to Johannesburg, South Africa.

#### 6 June: Digital World 2014 | Bangladesh

Ashok Kumar was invited to Bangladesh to participate as a panellist in the discussion on “Embedding Innovation in Government DNA”, organised by Bangladesh Association of Software and Information Services.

#### 10 June: Acamedia Conference 2014 | United Kingdom

Stuart Smith delivered a keynote speech on “If You Build It They will Come, or Do They Actually Need To?” at the conference held at University of Sunderland, United Kingdom.

#### 18 June: 26<sup>th</sup> International Conference on Advanced Information Systems Engineering (CAiSE 2014) | Greece

Ouh Eng Lieh submitted a research paper on “Understanding Service Variability for Profitable Software as a Service: Service Providers' Perspective” at the conference held in Thessaloniki, Greece.

#### 1 August: 2014 Authentication Technology and Information Security Summit | China

The theme of the summit was “Information Security Technology as a Catalyst for the Development of Information Society”. Ouh Eng Lieh was a panellist at this summit held in Zhuhai, China, on the topic “Best Practices of Authentication and Access Management on Cloud & Mobile Platforms”.

#### 26 August: CIO Summit 2014 | Malaysia

The theme for the 2014 summit was “Transform to Deliver the New Value of IT”. Organised by CIO Asia and IDC, the event took place in various Asian cities. For the event in Kuala Lumpur, Malaysia, Ashok Kumar delivered the keynote speech on “Digital Revolution”.

#### 27 August: Inside 3D Printing Conference | Hong Kong

Dr Virginia Cha spoke on “Funding 3DP Start-ups” at this conference cum expo in Hong Kong.

#### 2 September: CIO Summit 2014 | Thailand

The theme for the 2014 summit was “Transform to Deliver the New Value of IT”. Organised by CIO Asia and IDC, the event took place in various Asian cities. Khoong Chan Meng delivered the keynote speech on “Developing Smart Nations: The CIO’s Agenda” in Bangkok, Thailand.

#### 3 October: Agile Practitioners Conference 2014 | Malaysia

Jagadeesh Balakrishnan spoke on “Agile Project Management - Is it an Oxymoron?” at the conference organised by Scrum Alliance in Kuala Lumpur, Malaysia.

#### 28 October: The 8th International Conference on Theory and Practice of Electronic Governance (ICEGOV2014) | Guimarães, Portugal

Lim Swee Cheang co-chaired a discussion session on “Governing the Aging Society” with Prof Obi of Waseda University, Japan.

#### 25 November: Fujitsu Technology Symposium | Hong Kong

Stuart Smith spoke on “An era of transformation – what to expect in the new digital business environment” and also participated as a panellist in a discussion on “Executive panel session: CIO priorities in 2015 – a deep dive into cloud, analytics and customer experience in the digital world” in this symposium.

## Annex D: Events

### ISS Seminars

#### 16 January: Enabling Mobile Enterprise

Web application developers attended the seminar and learned how to set up a mobile enterprise quickly and efficiently, manage and optimise a mobile development environment, and design user-centric mobile applications. Mr Kristopher Heslop, General Manager, Massive Infinity, talked about the company's development library to manage mobility services. Mr Michael Ong, Senior Product Manager, Bellabox, shared his learnings on setting up a mobile roadmap and developing mobile applications such as for logistics, cleaning inspection, airline, ticketing and property sectors. Mr Lee Chuk Munn, Lecturer, ISS Advanced Software Design & Development Practice, shared some quick tips to mobile-enable a back-end enterprise application. The seminar received an overall event experience rating of 3.89 from the 62 attendees.



"The speakers have practical experience and are knowledgeable in their expertise."

- Johnathan Tay, Senior Software Engineer, 3M Innovative

"I like the technique and methodology required for mobile application development, the shared experiences from experts."

- Michael Qiu, Senior Consultant, Enterprise Software Professionals

#### 19 February: In Conversation with Tim Brown, IDEO CEO

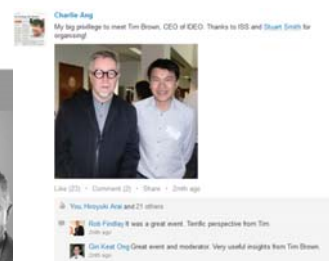
The enthusiastic crowd of 160 participants from various industries and professions attended the two-hour seminar to listen to and network with Tim Brown, IDEO CEO. Tim's message came across loud and clear, "In a world where everything is volatile and everything is complex, the one thing you can do that's definitely not going to work is, doing the same thing tomorrow as you did yesterday and only doing that. If you can't be adaptive, agile and if you can't innovate, then the chances that you're still going to be around in a decade are very slim." The seminar received an excellent rating of 4.3 out of 5, and generated a lot of social buzz when the attendees posted their feedback on Facebook and Twitter.

"Thought provoking on what more can be done."

- June Seet, NCSS

"Interesting insights."

- Jim Gan Chiu Liang, Programme Manager, Singapore Polytechnic



#### 27 February: The Value of Visualisation

92 participants attended the seminar to listen to Pat Hanrahan who discussed guiding principles for designing useful and effective visualisation. Pat is the Co-Founder & Chief Scientist of Tableau Software, and the CANON Professor of Computer Science and Electrical Engineering at Stanford University. The participants rated 4.3 for their overall event experience.

"Interesting perspective on data visualisation, a more scientific approach in viewing the human's perception of data."

- Chiang Yi Si, Policy Executive, MINDEF

### 13 March: ISS-IIBA SG Seminar: Agile Business Analysis, User Experience Design and You

This seminar was jointly organised by ISS and International Institute of Business Analysis (IIBA) Singapore Chapter. At the panel discussion hosted by Mr Mark Lim, Deputy Director, and Mr Steven Koh, Senior Agile Coach, both from IDA Government Digital Services, and Mr Ramamoorthy Natarajan, VP, JPMorgan Chase, and Ms Saisudha Rajagopal, Consultant, ISS Service Innovation Practice, the about 100 attendees learned about "Business Analysis in Agile Projects". Stuart Smith also answered the question "User Experience Design: What has Business Analyst got to do with it?"

"Good, entertaining and relatable. I like how Stuart provides real world examples and linkages."

- Aaron Tan, IT Analyst, Exxonmobil Asia Pacific

"Excellent training. I believe the speaker needs more time but it's not enough. I will be back for more training. Good job!"

- Alvin Mancenido, Business Analyst, ANZ



### 1 April: ThoughtWorks-ISS Quarterly Technology Briefing on Agile Analytics



ThoughtWorks, Infocomm Development Authority of Singapore (IDA) and ISS collaborated to bring about this briefing by Dr Ken Collier, Director of Agile Analytics, ThoughtWorks. The evening talk cum panel discussion at Raffles City Convention Centre examined the exciting emerging field of Agile analytics and the convergence of analytics techniques, learning principles, delivery methods and big data technologies. Speakers were Dr

Ken Collier; Mr Prabir Sen, Chief Data Scientist, IDA; Dr Leong Mun Kew, Deputy Director, ISS; and Dr Barry Shepherd, Senior Member of Enterprise Business Analytics Practice, ISS.

"Excellent presentation on Big Data Agile Analytics." - Billy Chua, Analyst, Housing Development Board

"Great speakers. I liked the insights given by Dr Ken." - Arun Mehta, VP, Credit Suisse AG

### 11 April: Facebook: We Like You, We Like You Not

The speakers of this year's first Social Media (Re)Connections seminar included Ms Lee Kai Xin, Director, Wild Interactive, who challenged that content focusing on selling, rather than helping, was doomed to fail, and content without community, approachability, humanisation and kinship would be ineffective. The 54 participants also learnt from speaker, Mr Eugene Sim, Director, Conversion Hub Marketing, shared practical tips and tactics to boost customer engagement by 10-100x and grow 20,000 Facebook fan base within 2 months with a couple of hundred dollars. Mr Chia Han-Leon, ISS Lecturer of Enterprise Social Business, discussed the conflicting perspectives of a Facebook addict and a Facebook hater. The participants had a lot of fun at the seminar and gave a rating of 4.3 for overall event experience.

"Good insights and practical case studies!"

- Adriane Lee, Marketing Executive, Singapore Furniture Industries Council

"I enjoyed the tips and sharing of practical knowledge from actual practitioners!"

- Ko Weixiong, Manager, Electronic & Alumni Marketing, JCU Singapore



### 9 May: Analytics for Enhanced Customer Experience

Three speakers with diverse background shared their thoughts in leveraging on analytics for effective customer engagement and higher customer loyalty. Mr Timo Josten, Co-Founder & Managing Partner, Sparkline, presented on the challenges when businesses strived to become a “Data Driven Decision Maker”. Mr Eric Chen, Director, Global Business Service Business Intelligence, The Procter and Gamble Company, provided a strategic framework to holistically leverage data, reporting and analytics to track, understand and proactively act on business opportunities, to win customers and consumers. Dr Kingshuk Banerjee, Associate Partner, Business Analytics and Optimisation, IBM, discussed effective marketing campaigns designed for better customer understanding and segmentation.

### 27 May: Seminar with CapitaLand: Service transformation through customer experience design and management

Held at Khoo Teck Puat Hospital, the event targeted at C-level, directors and functions heads. Mr Ong Tze Boon, Group Executive Chairman, Ong & Ong talked about his company’s customer experience journey. Mrs Chew Kwee Tiang, CEO of Khoo Teck Puat Hospital, Alexandra Health, shared the KTPH journey in customer experience and its service excellence culture.

### 12 June: ISS-IBM Seminar: Supply Chain Innovation and Analytics through IBM Case Studies

The IBM supply chain has over 30 showcase analytics projects across multiple elements of the enterprise process framework, for asset optimisation, forecasting, risk management, quality management, and other areas. Mr Steve E Bayline, Senior Manager, Smarter Supply Chain Analytics, discussed IBM’s supply chain analytics strategy, case studies and skills required for successful analytics implementation.

### 18 June: ISS-CSC Roundtable on Service Delivery & Transformation for the Digital Citizen

Jointly organised by ISS and the Civil Service College, the speaker for this roundtable was Ms Emer Coleman, Founder of DSRPTN Consulting and former Deputy Director of Digital Engagement, UK Government Digital Service. She discussed and fielded questions from the audience on the emerging challenges in designing and transforming services for the digital citizen.

### 19 June: Service Innovation in Infrastructure: How Digital & Design Can Change the Game



(Above from left) Stuart Smith, Chief of ISS Service Innovation Practice; Tamsin Greulich-Smith, Member of ISS IT Strategy and Management Practice; and Ms Emer Coleman, Founder of DSRPTN Consulting and former Deputy Director of Digital Engagement, UK Government Digital Service.

Targeting at professionals in the infrastructure industry including transportation, construction, architecture, property, IT and engineering services, attendees at this seminar heard from experts on how design thinking and digital innovation approaches were applied in successful infrastructure projects, and how these trends would impact urban infrastructure delivery in the future. Ms Emer Coleman shared her experience as the architect and driving force behind the Greater London Authority Digital Data Store, one of the first to release transport data free of charge to developers and the public and led to similar projects around the world. Tamsin Greulich-Smith, Member of ISS IT Strategy and Management Practice, illustrated the application of design thinking to overcome problems such as complaints and traffic management, resulting in successful project delivery.

## 20 June: Using Service Innovation to Overcome Workforce Challenges



(Above from left) Mr Ian Wilson, Senior Vice President (Hotel Operations), Marina Bay Sands; Ms Emer Coleman, Founder of DSRPTN Consulting and former Deputy Director of Digital Engagement, UK Government Digital Service; and Mr Daniel Goh, Founder & Owner of The Good Beer Company and Founder & Chief Editor of YoungUpstarts.

In this morning seminar, attendees heard from representatives of the hospitality, food & beverage, government and transport sectors about the challenges and strategies in leading their organisations through the service innovation journey. Mr Ian Wilson, Senior Vice President (Hotel Operations), Marina Bay Sands divulged the strategies to overcome workforce challenges when delivering service excellence. Ms Emer Coleman, Founder of DSRPTN Consulting and former Deputy Director of Digital Engagement, UK Government Digital Service, advocated that in the digital era, all job roles must be configured to be more service-oriented and customer-centric. Mr Daniel Goh, Founder & Owner of The Good Beer Company and Founder & Chief Editor of YoungUpstarts, shared how his food and beverage start-up in Singapore adopted innovative approaches to overcome workforce and business challenges.

“Very interesting to see case studies from a major conglomerate to small business enterprise.”  
 - Junius Soh, Associate Director, NUS

## 18 July: Agile Software Development: Swift and the Shift



Participants attended this seminar to understand the nuances that govern Agile software development projects, gain insights on Agile software engineering practices that yield high quality software, appreciate challenges and lessons learnt during organisational transformation, and demystify the art of Agile project management. Guest speaker, Lee Chee Yong, Agile Practice Lead, NCS Agile Competency Centre, covered the thinking processes and challenges faced by NCS as it underwent the Agile transformation, including the

sensitivities when applying Agile practice in a heterogonous Asian culture with greater power distance, respect for authority and subtle mannerism. Dr Robert Firth, Senior Member of ISS, talked about Agile governance; Swarnalatha Ashok (in photo), Chief of ISS Advanced Software Design & Development Practice, advocated a strict Agile way towards software craftsmanship; and Jagadeesh Balakrishnan, Associate of ISS Software Engineering Programme, shared the misconception regarding Agile project management.

**25 July: ISS-UXC Seminar: Move IT from Cost to Value Centre using IT Service Management and COBIT**  
 Speakers from UXC Consulting and ISS shared the strategy to transform IT into a value centre by combining the 4 distinct sources of values: cost centre for operational efficiency, service centre to support existing business strategy, investment centre to create new IT-related business opportunities, and profit centre for cost transparency, utilisation and charging. The seminar included 3 speakers from UXC Consulting, namely, Mr Jamie Donoghue (Principal Consultant), Mr Krist Yong (Senior Consultant) and Mr Alvin Goh (Senior Consultant), as well as Mr Goh Boon Nam, Chief of New Initiatives & Strategic Planning from ISS.

### 31 July: ISS-IBM Seminar: A Measure of Social Media Analytics

Participants attended this afternoon event at IBM Client Centre to listen to 3 speakers sharing their research and industry experience in social media analytics. Mr Cedric Dias, Digital Director and Head of Social Media, Havas Media, talked about the key trends and case studies in social media analytics. Mr Sushil Anand, Senior Managing Consultant, IBM Analytics & Strategy – Global Centre of Competence, focused on the integration of social media insights with an organisation's functions to illuminate the measurable impact of social media. Professor Jorge Sanz, Director, Business Analytics Centre and Visiting Professor, NUS School of Computing, addressed critical questions arising from the advent of analytics.

### 17 September: ISS-Cloud Sherpas Seminar: Using Cloud & Wearable Technologies to Transform Customer Service

Cloud provides the infrastructure and pay-as-you-go consumption model that enables rapid provisioning of computing resources with minimal efforts for measured, monitored and metered services. Cloud-powered wearable technology will form an integral part of the 'Internet of Things', a growing network of devices that connect to the Internet to share data in real-time. Ms Min Fang, Solution Architect, Cloud Sherpas, shared the 7 myths about cloud computing and an enterprise service innovation case study at PanAust Mining. Another speaker, Mr Rahul Garg, Implementation Specialist, also of Cloud Sherpas, did a live "cloud + wearable" demonstration using Google Glass.

### 31 October: How Analytics is Transforming Healthcare

This seminar received overwhelming response due to the high profile speakers. Dr Steven Tucker, Medical Director, Tucker Medical gave a talk on "Transforming Healthcare: The Quantification of Everything". Dr Liu Nan, Senior Research Scientist and Principal Investigator, Singapore General Hospital, presented on the medical informatics projects. The third speaker, Mr Sandeep Makhijani, Regional Director for Asia Pacific (APAC), Truven Health Analytics, explored how clinicians use healthcare data analytics to improve clinical, operational and financial performance across the continuum of care. The fourth and last speaker, Dr Adam Chee, Founder and Chief Advocacy Officer, binaryHealthCare, covered the concept of sensible data governance in the healthcare setting and examined the different levels of interoperability and their effects on data quality.

### 11 November: Service Excellence in the Omni-channel Era



*(From left) Mr Tim Kobe, Founder & CEO, Eight Inc; Mr Rob Findlay, Customer & Innovation Culture Lead, DBS Bank; Mr Philip Whittaker, Chief Marketing Officer, Themed Attractions and Resorts Sdn Bhd; Mr Andrew Roth, Founder, Perx; Mr Ian Wilson, Senior Vice President (Hotel Operations), Marina Bay Sands; Mr Mark Wee, Director, Experience Design, Ong & Ong; panel discussion led by Mr Lim Swee Cheang, Director & CEO, NUS-ISS (Apr 1998 to Feb 2015).*

The emergence of omni-channel is fundamentally changing the concept of business operating models, harmonising service delivery and customer engagement activities that blend online and offline channels easily. Though it is still in its nascent stage, the omni-channel movement has progressed rapidly, especially for forward-looking retailers, banks and public agencies. This full-day event at Hotel

Novotel Clark Quay was helmed by the following speakers: Mr Tim Kobe, Founder & CEO, Eight Inc; Mr Rob Findlay, Customer & Innovation Culture Lead, DBS Bank; Mr Philip Whittaker, Chief Marketing Officer, Themed Attractions and Resorts Sdn Bhd; Mr Andrew Roth, Founder, Perx; Mr Ian Wilson, Senior Vice President (Hotel Operations), Marina Bay Sands; Mr Mark Wee, Director, Experience Design, Ong & Ong; and Dr Boaz Boon Yean Leong, Senior Vice President (Learning & Development), CapitaLand. Together, they shared their experiences in driving service innovation in various sectors.

## Architecture Community of Practice (ACoP)

The Architecture Community of Practice (ACoP) comprises a core group of ISS lecturers and passionate industry professionals specialising in enterprise, business, information, application, technology and solution architectures, coming together to organise events for like-minded professionals to share their experiences – successes, failures, learning points – with one another.

### 18 March: 7<sup>th</sup> ACoP Forum – Technology Architecture: Creating a Solid Foundation for Business Agility and Growth

Mr Andy Wang (in photo), Vice President of Enterprise Architect, OCBC Bank and MTech alumnus (Class of 2007), provided an overview of OCBC's Enterprise Architecture journey.



"Speaker got good knowledge in EA. He was able to answer many questions very well."

- Venkateswara Raju Konduru, AVP, Bank of America Merrill Lynch

"Presenting in an interactive manner makes the seminar lively. Speaker is able to clearly explain with short and sweet points."

- Ho Wee Peng, Senior Manager, Ministry of Manpower

### 15 July: 8<sup>th</sup> ACoP Forum – Organisational Excellence and Enterprise Architecture

Ms Lim Choo Heok, Principal Systems Analyst and Deputy Team Lead for the Enterprise Architecture Office in Housing & Development Board Singapore, presented the HDB's experience in using Enterprise Architecture as an enabler towards organisational excellence. She shared useful tips, lessons learned and best practices for organisations embarking on an EA journey. The HDB Enterprise Architecture won the iCMG Enterprise & IT Architecture Excellence Awards (Best Enterprise & IT Architecture in Government / Defence / Public Sector category) in 2013, when pitted against 15 other international participants.

"Great sharing of practical experience and knowledge!"

- Chua Siu Cheng, Assistant Vice President, UOB

### 11 November: 9<sup>th</sup> ACoP Forum – Operationalising Enterprise Architecture in the Real World: Drawing Lessons from NEHR and MIT

Mr Wong Ming Fai, CIO/Director (IT) of SPRING Singapore, shared the CIO's perspective on the value of Enterprise Architecture (EA) and the challenges in operationalising EA. He took the audience through his architecture journey, starting from his work with the National Electronic Health Record (NEHR) project, to his time as System Design and Management Programme Fellow at the Massachusetts Institute of Technology (MIT), and his current role managing IT at SPRING Singapore.

"Awesome speaker who shared his real experience and challenges with us."

- Lalit Vashist, IT Infrastructure Manager, HP



## IT Service Management Community of Practice (ITSM CoP)

The IT Service Management Community of Practice (ITSM CoP) hosted by ISS is made up of passionate professionals involved in ITSM, with the aim to promote ITSM through experience sharing and co-learning in a vibrant community of practitioners.

### 24 April: 2<sup>nd</sup> ITSM CoP Forum – Major Incident Management: A Case Study

60 attendees listened eagerly to Ms Mayda Lim (in photo), Head of Implementation & Support, Technology Operations, Thomson Reuters at this 2<sup>nd</sup> ITSM CoP forum. Mature organisations like Thomson Reuters implement best practices to handle major incidents when they happen, while minimising customer pain and brand damage. Mayda shared 3 keywords for major incident management. The first is “communicate”, as the stakeholders need to know if there is a major incident, and the customers need to be told immediately if anything goes wrong. The second is “escalate” to the right group and the right vendor to help in the restoration. The third is “prioritise” to determine the segment service that needs to recover first.



“Practitioner sharing actual experience and application of knowledge.”

- Rio Kam, Founder, *insuRebel*

“Good overview and sentiment of how incidents are managed.”

- Jason Lim, Regional Program Manager, *Merck Sharp & Dohme*

### 8 August: 3<sup>rd</sup> ITSM CoP Forum – A Journey of Introducing ITIL in the Singapore Office of a Japanese MNC: Practical Considerations



At this 3<sup>rd</sup> ITSM CoP forum, Mr Nigel Lim (in photo) from ADEKA Singapore presented his personal experience as an IT manager implementing ITIL in an SME-sized subsidiary of a Japanese MNC. He had to adapt ITIL into his greenfield environment with limited resources, when stakeholders were still resistant to the new concept. He shared the practical issues he faced and the solutions he adopted.

“Dynamic presentation. The speaker knows his subject well.”

- Frederic Marie-Martinoli, Head of IT, *Altus Logistics Pte Ltd*

## Industry Events

### 4 March: IBM SolutionsConnect 2014 – A New Era of Smart

Dr Leong Mun Kew was a guest speaker at the dialogue session on the topic of “Big Data & Analytics, Cloud, Mobile and Social as a Growth Engine for a Smarter Enterprise” hosted by IBM. ISS Enterprise Social Business lecturers, Goh Boon Nam and Leon Chia, also conducted a social clinic at Grand Copthorne Waterfront Hotel to provide advice on implementing and growing collaboration through social media practices.



## 10 & 13 March: Singapore Design Week



As part of the Singapore Design Week from 10-16 March, ISS conducted a workshop and a seminar on 10 and 13 March on the theme of Experience Design. The workshop focused on creating an optimal service experience for the customer. For the seminar, Stuart Smith hosted a panel discussion with Mr Jin Zwicky from OCBC and Mr Mark Wee from Ong & Ong, to share practical challenges, future thoughts on a practice that matters. A group of 40 design practitioners attended the workshop, and another 100 attended the seminar, to learn from the experts.

## 21 March: itSMF Singapore Annual Conference 2014



ISS and UXC Consulting co-sponsored this event held at Park Royal@Beach Road. The event was attended by 150 IT service management professionals.

## 25 March: SiTF ICT Business Summit 2014 – Evolution of Mobile Technology

ISS had a booth at this event organised by the Singapore Infocomm Technology Federation (SiTF) at Marina Mandarin Hotel. In addition, Lim Swee Cheang led the panel discussion on "Getting the Most out of Mobility". The panellists were: Mr Charles Reed Anderson, Associate Vice President, Head of Telecoms & Mobility, IDC Asia/Pacific; Mr Myungjo Choi, Managing Director, Southeast Asia, Facebook; Mr Poshu Yeung, Vice President, International Business Group, Tencent; and Mr Winston Goh, Head of IT & Mobile Communications (Enterprise & SMB), Samsung Asia. The light-hearted discussion drew much laughter from the 200 delegates who attended the event.



## 16-17 June: APEC TEL Workshop & 9<sup>th</sup> IAC Forum

As part of the APEC TEL Workshop & 9<sup>th</sup> IAC Forum, ISS management passionately led active discussions in their areas of expertise. Lim Swee Cheang moderated the panel discussion on "ICT in Aging Society – Generating economic benefits and opportunities for social integration in the elderly and PWDs sector". Dr Leong Mun Kew led the track on "Open Data vs Big Data – Harnessing data analytics for citizen participation". Khoong Chan Meng was a panellist for "CIO Training Model – Equipping CIOs with Strategic Infocomm Capabilities", whereas Stuart Smith, Chief for ISS Service Innovation Practice, participated in the track discussion on "International Cooperation – Building a Smart Community".

"ICT in Aging Society as discussions were very engaging, dealing with the practicality of the issue at hand."  
 - Chaw Khin Khin, CEO Myanmar Computer Co. Ltd

"Smart cities or smart citizens by Ms Coleman was such an eye-opener and inspiration to me, and hopefully I can apply some theories into practice in my country."

- Dk. Sarayatul Marianawatie Pg Haji Merali, Prime Minister's Office, Brunei Darussalam

"All sessions are very informative and the speakers are experts in their respective fields."  
- *Leong Kei Hong, Public Administration & Civil Service Bureau, Macao SAR*

#### 23-25 September: GovernmentWare / SecureSingapore 2014 – Strengthening The Cyber Security Ecosystem

ISS and International Information Systems Security Certification Consortium ((ISC)<sup>2</sup>) co-sponsored an exhibition booth at Suntec Singapore International Convention & Exhibition Centre, for the GovWare event organised by Ministry of Home Affairs.

#### 30 September: Digital Marketing for Sustainable Growth

ISS was a sponsor for this event organised by the Association of Small and Medium Enterprises (ASME). Leon Chia, ISS Enterprise Social Business lecturer, talked about the "5 Ways to Winning Customers via Social Media".

#### 30 October: ASME Business Symposium 2014

ISS was a sponsor for this event organised by the Association of Small and Medium Enterprises (ASME). At the ASME Business Symposium held at Grand Copthorne Waterfront, Stuart Smith talked about "Service Quality for Competitive Advantage".

#### 6 November: ITMA 20<sup>th</sup> IT Best Practices Seminar

The Information Technology Management Association (ITMA) and ISS co-organised this annual IT Best Practices Seminar. The theme for the 2014 seminar was "Looking Back, Looking Forward" and was held at Marina Bay Sands, Singapore. Khoong Chan Meng was the moderator for a panel on "Vision for the IT industry in Singapore".

#### 12-14 November: Agile Singapore Conference 2014



The conference was organised by Agile Singapore, a group of passionate professionals dedicated to spread the awareness about agility in the context of software development as well as challenge and inspire those who are practicing agility to further successes. ISS together with GoodAgile was a gold sponsor for this 3-day event held at Marina Bay Sands Expo & Convention Centre.

**INSTITUTE OF SYSTEMS SCIENCE**  
**National University of Singapore**

25 Heng Mui Keng Terrace  
Singapore 119615  
Tel: (65) 6516 2093

Email: [isstraining@nus.edu.sg](mailto:isstraining@nus.edu.sg)  
[facebook.com/iss.nus](https://facebook.com/iss.nus)  
[twitter.com/issnus](https://twitter.com/issnus)  
[www.iss.nus.edu.sg](http://www.iss.nus.edu.sg)

