IS Chartered Accountant Journal
NOVEMBER 2021

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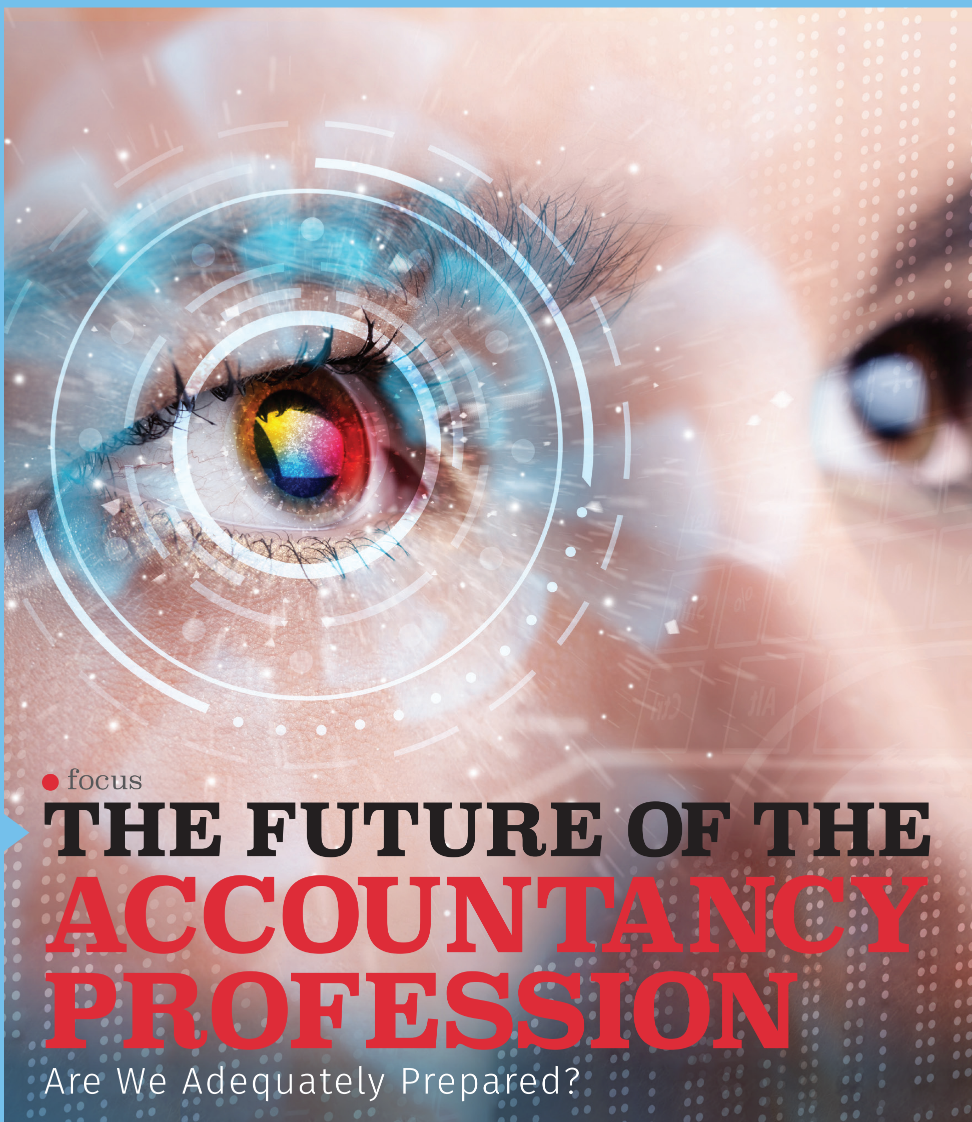
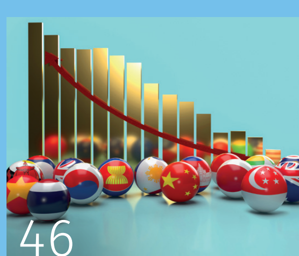


focus

THE FUTURE OF THE ACCOUNTANCY PROFESSION

Are We Adequately Prepared?



ISCA INSTITUTE OF SINGAPORE CHARTERED ACCOUNTANTS

Dear members,

THE ACCOUNTANCY PROFESSION HAS BEEN EXPERIENCING HEADWINDS ESPECIALLY IN RECENT YEARS. From regulatory changes to digital transformation, from heightened stakeholder/shareholder expectations to COVID-19 disruptions, accountants have been under relentless pressure to manage these issues and more. It is to our members' credit that they have risen to the occasion time and again, serving their clients and organisations with professionalism.

Accountants add value wherever they go through their knowledge and skills, and supported by their attributes. In fact, "add" features strongly in our profession. Historically, at the most fundamental level, we add the numbers. At the strategic level, we add value. At the individual level, ADD is the acronym for "adaptable, dedicated, dynamic", which are the essential qualities for navigating a rapidly evolving world.

Anecdotally, ADD characterises our members as they are constantly making adjustments in an increasingly complex business setting. Last month, at the ISCA Members Recognition Ceremony, we congratulated the recipients of the Financial Forensic Professionals (FFP), Infrastructure & Project Finance Professionals (IPFP), and ISCA Professional Business Accountant (PBA) credentials. We also welcomed our newly minted CA (Singapore) and FCA (Singapore) members, and honoured members who received their Life Membership, and 50 Years Milestone Award. It takes commitment and discipline to fulfil the rigorous requisites of the professional credentials and, for long-term members, it takes dedication and continuous learning to keep abreast of the professional and industry developments over the years.

Daily, we see ADD in action among our members as new developments take place that will impact the profession, and the business environment. A case in point is the Regional Comprehensive Economic Partnership (RCEP), which was ratified in April this year. From interpretation of the terms to application and implementation, accountants are well qualified to help their organisations derive maximum benefits from the RCEP.

The Ministry of Trade and Industry has published three supporting booklets on how the private sector can use RCEP to their advantage, and we have the highlights of the first booklet here. The key points of the other two booklets will be published in the following journal issues.

Learning agility is vital for success in an ever-changing world. Just as our senior members have adapted professionally, younger members also need to be flexible as they head towards a future where the impact of digital disruption will be deeply felt. Machines are already assuming the repetitive, routine tasks. Rather than worry about job obsolescence, accountants can equip themselves with higher-level skills to enable them to work on the more strategic aspects of a business, and to provide professional counsel and value-adding specialised services to drive growth. As new opportunities emerge in the Finance function to optimise the collaboration between humans and machines, accountants who have already acquired the skill sets can immediately step up.

As a profession, we need to look beyond conventional accountancy services and cultivate skills and specialisations so that we remain relevant to the businesses of the future. In addition to the FFP and IPFP specialisations I mentioned earlier, other high-growth areas of potential for accountants include intangible assets (IA) and intellectual property (IP), as envisaged in the Singapore IP Strategy 2030, and in sustainability, as laid out in the Singapore Green Plan 2030. Read about the prospects for the accountancy profession in the cover story, "The Future Of The Accountancy Profession". Also find out how ISCA supports members in their professional journeys with the Institute's specialisation pathways, certification programmes and quality resources – all of which are designed to arm members with the competences to excel in the future workplace

Digitalisation is a topic of significant interest to ISCA because of its profound impact on the accountancy profession. Do have a look at the two joint research reports we published recently, if you have not already done so – "The State Of Play Of Intelligent Automation In The Finance Function" (2021) and "Redefining The Finance Function With Job Redesign" (2020). We continue the discussion in these pages with "Artificial Intelligence And Work (Part 1)", which examines two perspectives of the effects of intelligent technologies on human work. Similar to our research, the writers conclude that while intelligent technologies can take over routine, rules-based tasks, they cannot perform entire business processes or jobs nor execute judgement. Humans are also needed to facilitate the transition to intelligent technologies and, as the writers point out, getting together technologies, people and job roles in any real-world work setting is a multifaceted, time-intensive and iterative undertaking that extends over longer time periods.

Meanwhile, for our members, continue to nurture your ADD traits and elevate your skills through continuous professional learning, including tapping on the useful materials in this journal.

The Accountant's Essential Traits: Adaptable, Dedicated, Dynamic (ADD)

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Data Sharing Key To Solving Asia's Biggest Economic And Societal Challenges

PHOTO SHUTTERSTOCK

BUILDING A FOUNDATION OF TRUST, greater public-private collaboration, and a proactive approach by governments will unlock new opportunities to innovate and solve Asia's biggest challenges. This was the key finding of a whitepaper by Microsoft Asia, developed with support from the Open Data Institute (ODI).

Today, 50% of the data generated by online interactions is amassed by fewer than 100 companies. If this "data divide" continues, economic value will flow only to a few economies and companies in the region. The whitepaper, "Sharing Data for Impact: Lessons from Data Sharing Initiatives in Asia", was launched as part of Microsoft's ongoing efforts to address the data divide, by empowering people and organisations to share and use data more effectively and equitably. It features learnings from 10 case studies of data collaboration across markets in Asia, including Australia, India, Indonesia, Japan, New Zealand, Singapore and Taiwan.

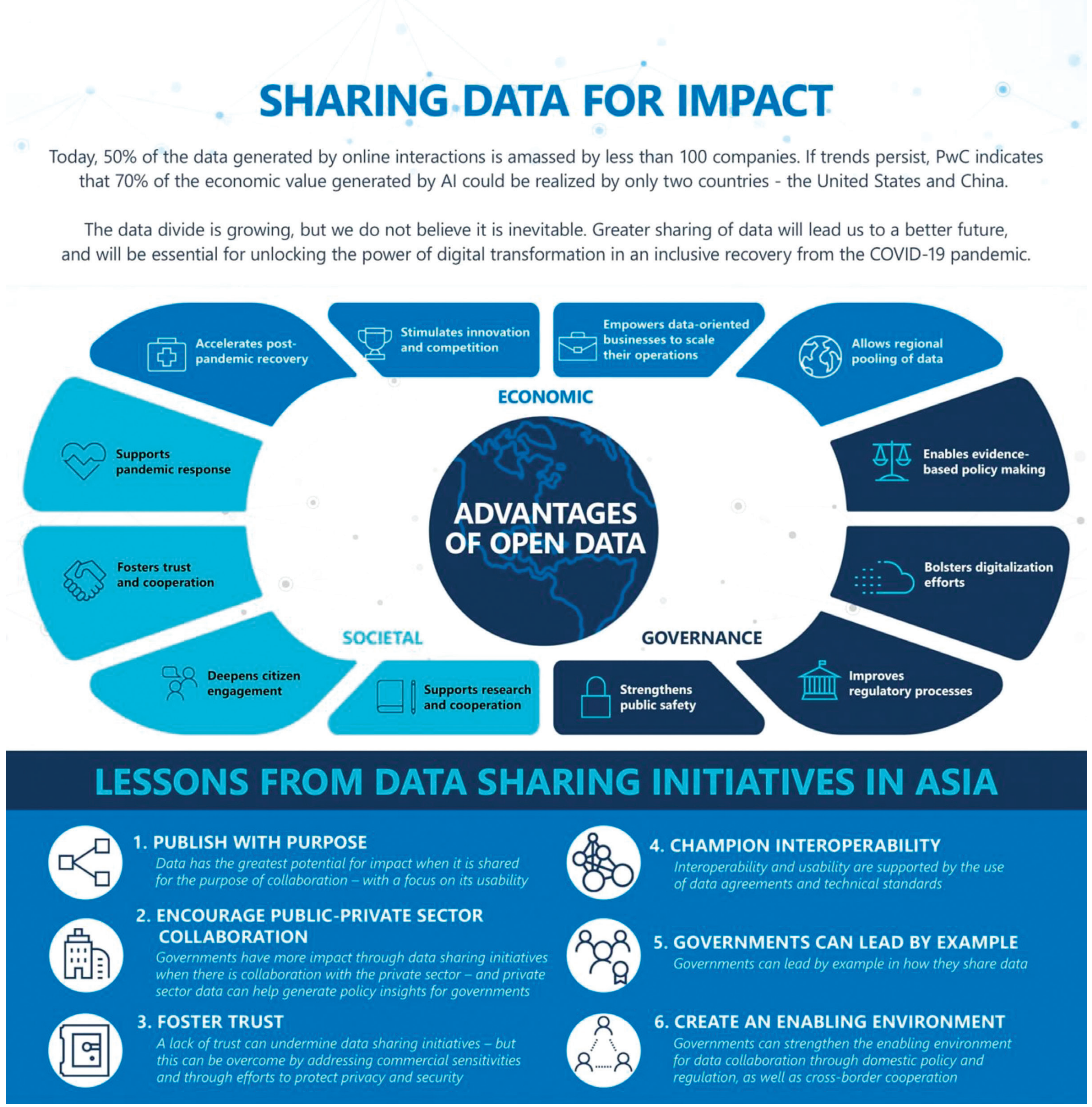
"Data is indispensable to managing some of Asia's most urgent challenges – from combatting the pandemic, to reducing carbon emissions, and tackling cybersecurity. Regardless of the problem that Asia faces, there's a good chance that data can be part of the solution," said Mike Yeh, Regional Vice President and Director of Corporate, External and Legal Affairs, Microsoft Asia. Given Asia's profile as a populous, mobile-first region, it is uniquely poised to be a leader in unlocking the potential of data sharing. But this will require a foundation of trust, and the public and private sectors working together, explained Mr Yeh.

"Data sharing is most successful when governments and organisations work together to drive an enabling environment that upholds security, privacy and interoperability," reinforced Jack Hardinges, Programme Lead, Data Institutions, ODI. This includes getting data to those who need it, particularly in response to UN Sustainable Development Goals. The case studies that inform the whitepaper's learnings show that Asia is "on the way to establishing an open, trustworthy data ecosystem – and can take intentional steps to close the 'data divide' in ways that benefit societies and economies".

Trust is foundational to data sharing

A common theme is that a lack of trust can undermine data-sharing initiatives. However, this can be overcome through efforts to protect privacy and security, and through strong governance models:

- *Privacy* management practices are essential, and there is a key role for tools like confidential computing and differential privacy, a practice used in the opening of LinkedIn's labour market insights data.
- To uphold *security* in data sharing, security-by-design approaches and alignment with security certifications promote trust: cloud-based solutions for data sharing deliver cutting-edge security protections for organisations sharing data.
- *Governance models* can also be built to protect commercial sensitivities: through the AI Data Consortium in Japan, contract templates and smart contracts are being developed for AI practitioners to share data more easily.



Source: • OECD (2019): Enhancing Access to and Sharing of Data • Microsoft (2020): Closing the data divide: The need for open data • PwC (2017): Sizing the prize

Greater public-private collaboration

The whitepaper further establishes that opportunities for data can only be maximised through active public-private collaboration. Impact is greater when data is usable and interoperable.

- *Collaborating* on data reaps benefits, such as in sharing LinkedIn data on in-demand roles to close skills gaps in Asia or Microsoft cyber threat intelligence open-source data on COVID-19-related threats to bolster cybersecurity and inform policymaking.
- *Usability and interoperability* can be better facilitated through publishing data that anyone can use and redistribute, and is available in common formats with no usability restrictions.

Governments to lead the charge

The whitepaper demonstrated that governments have a key role to play in creating an enabling environment for data sharing to flourish. Priority actions for governments are to publish more usable government data, implement national data-sharing policies, and engage with industry and other stakeholders to ensure that regulations affecting data sharing are balanced and transparent. Further regional cooperation to support data sharing through groups like ASEAN and APEC would also have significant positive impact.

Joint Action Needed For Inclusive, Sustainable Digital Economy

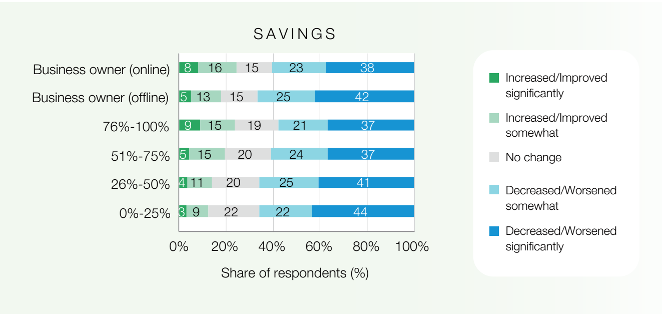
THE WORLD ECONOMIC FORUM (WEF) HAS LAUNCHED THE "ASEAN DIGITAL GENERATION REPORT 2021", a special edition of its annual ASEAN youth survey report series, which examines the impact of the pandemic on personal income, savings and the role of digitalisation in the region's economic recovery. The survey, conducted with close to 90,000 participants from Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam, also flags the gaps needed to build a more inclusive and sustainable economy, namely, access to technology, digital skills training for all generations, and measures to enhance online trust and security.

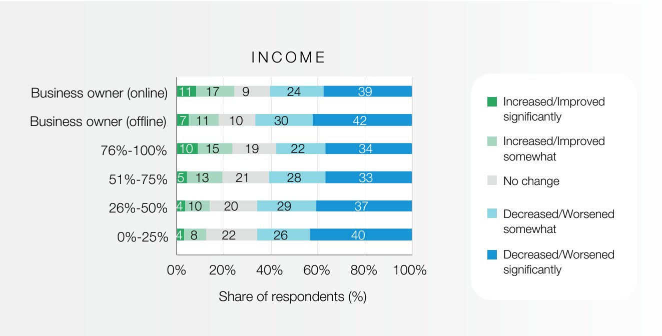
The findings confirm e-commerce's role as the key driver of growth in the ASEAN region. The wholesale and retail trade sector had the highest proportion of people starting new businesses (50%), while the logistics sector had the highest share of people finding new jobs (36%). Notably, respondents from these two sectors are among those who also reported a decline in income. This could be because when people experienced a fall in income, they started new businesses in the wholesale and retail trade sector to leverage e-commerce opportunities.

A majority of respondents have adapted to the challenges of the coronavirus pandemic through significant digital adoption. Across ASEAN, 64% of respondents have digitalised 50% or more of their tasks, as have 84% of respondents who are owners of micro, small and medium-sized enterprises (MSMEs). Respondents who reported greater levels of digitalisation of their work and business reported lower levels of income decline. Similarly, business owners with an online presence were more likely to report an increase in savings (24%) and income (28%) compared to those without one (18%).

PHOTO SHUTTERSTOCK

How have your savings/income changed during the pandemic?
By level of work and business digitalisation





Source: World Economic Forum

However, the benefits of digitalisation are unevenly spread across the region. Those who are less "digitalised" found further digital adoption less appealing. As in 2020, respondents continued to point to expensive or poor Internet quality or digital devices as the top barriers to digital adoption. While fewer digitalised respondents pointed to lack of digital skills as a key additional obstacle, more digitalised respondents pointed to trust and security concerns instead.

The identified obstacles were consistent across all six countries surveyed. As such, multi-stakeholder and regional joint actions are needed to unlock the full potential of ASEAN nations in the digital age and narrow these gaps.

"The survey showed improving the quality and affordability of ASEAN digital infrastructure, equipping the ASEAN workforce with appropriate skills and enhancing people's trust in the digital environment are crucial to bring ASEAN over the tipping point for inclusive and sustainable digital transformation," said Joo-Ok Lee, Head of the Regional Agenda, Asia-Pacific, WEF.

"One of the key findings was that digitalisation has a 'flywheel' effect wherein users who had first experienced the benefits of technology were more eager to deepen their levels of digitalisation," added Santitarn Sathirathai, Group Chief Economist at Sea, a Singapore-based global consumer Internet company. "It is critical for the public and private sectors to work even more closely to lower any friction and barriers, which may prevent the positive digitalisation momentum from taking place. Through this, digitalisation can enable post-pandemic recovery in an inclusive and sustainable way."

isca breakfast talk

Fighting Climate Change And Supporting Green Finance

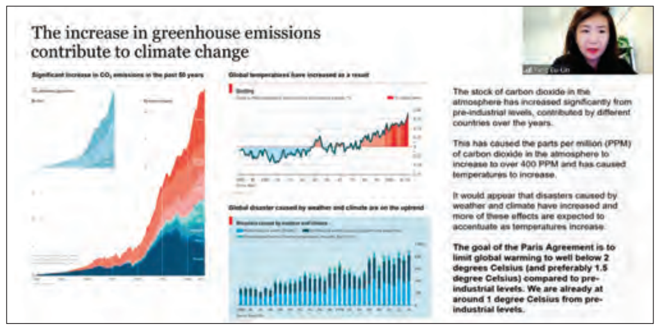
AT THE RECENT ISCA BREAKFAST TALK WEBINAR, Fang Eu-Lin, Sustainability & Climate Change Practice Leader and Partner, PwC Singapore, and Lee Bing Yi, Director, Financial Services Assurance, Sustainability & Climate Change, PwC Singapore, shared how accountants can contribute to the fight against climate change, and how increased transparency needs to be built into sustainable finance to move it forward. The event on September 8 was attended by 304 participants.

Ms Fang shared that the megatrends of the realisation of the adverse effects of climate change, global governance, investor and societal expectations, and technological advancements have pushed businesses to become more transparent in their sustainability and environmental, social and governance (ESG) disclosures. On this front, accountants can help in engendering more trust among stakeholders by ensuring that these disclosures meet international standards. The enhanced ESG disclosures also aid in lowering various risks such as environmental risk and, if managed well, lowering costs. Scientists have estimated that greenhouse gas emissions must be capped at 25 gigatons of carbon dioxide annually to not exceed an increase of 1.5-degree Celsius by 2030 and to be carbon net zero by 2050. Specifically, Ms Fang highlighted that accountants would be able to measure emissions, then make an argument for reducing emissions to meet those two goals. At the organisational level, accountants can evaluate the financial impact of transition risks and physical risks as part of the assessment and disclosure of climate-related risks.

Mr Lee explained the difference between green and sustainable finance: green finance is a subset of sustainable finance, and typically includes instruments such as green bonds and green loans, while sustainable finance is the broader practice of integrating ESG criteria into financial services to bring about sustainable development outcomes. Apart from green bonds and loans, sustainable finance instruments may include equity investments, grants and sustainability-linked instruments. Mr Lee shared that regulators play a significant role in supporting and developing sustainable finance; one such initiative is the Green and Sustainability-Linked Loan Grant Scheme from the Monetary Authority of Singapore.

Challenges remain before sustainable financing can truly take off. Many small and medium-sized enterprises find it difficult to obtain sustainable financing due to challenges in their ability to set and implement sustainability goals and yet, they are key components of supply chains and economies. Another challenge is the lack of clarity surrounding taxonomies of environmentally sustainable economic activity. Organisations may find themselves accused of "greenwashing", where projects that appear to be "sustainable" on the surface are proven otherwise upon deeper examination.

Climate change is an issue that requires a concerted effort across all parts of an organisation, and accountants can play an essential role in measuring the emissions arising from business activities. They can also assist organisations in setting meaningful targets and formulate strategies to reduce emissions, while ensuring that organisations stay the course through meeting sustainability reporting standards. Accountants can also play a role in scaling green and sustainable financing – an important tool in directing capital flow towards sustainable development goals – by promoting trust and credibility in the ecosystem.



MARK YOUR CALENDAR

19 NOV

Key accounting considerations in adopting Green Energy - Implementation of FRS 115 & FRS 116

This course is designed to equip participants to appreciate the following accounting impacts to ensure their company are ready for the change from both perspective as a customer and vendor:

- Key concepts and core principals of FRS 115 and 116
- Implementation challenges and opportunities of FRS 115 and 116 from:
  1. Signing a Power Purchase Agreement ("PPA")
  2. Building your own rooftop solar system

22 NOV

Accounting under FRS 116 Leases and its related Tax Implications

This workshop will focus on FRS 116 Leases, new accounting standard on lease accounting and its related tax implications.

24 NOV

ISCA Career Pathway Talk: Accountants in Tech (Season 4)

An initiative brought to you by the ISCA Young Professionals Advisory Committee (YPAC).

Have you ever wondered what industries accountants can move into? What are some unique career paths accountants can take? How can you ride on the rising tide of tech as an accountant? How has technology changed the work of an accountant?

In this session, we have invited accountants in the tech industry to share some insights and spill the beans (instead of counting them) on their forays into the tech industry and what it's like working in such a fast-evolving space.

Join us to find out the answers to the above questions!

25 NOV

Embedding Sustainability Reporting into Enterprise Risk Management

This workshop employs a variety of interactive methods to illustrate tools, concepts and techniques which will help professionals to better understand the requirements of Enterprise Risk Management and Sustainability Reporting (SR). Also, learn how to develop effective risk management and sustainability strategies for the business/company.

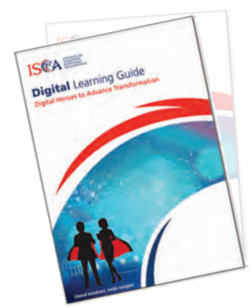
29 NOV

Mingles– Building Trust and Strengthening Accountability with the Amended PDPA and the Data Protection Trustmark Certification

COVID-19 has led to an increasingly digitalised global economy, and as the pandemic brings people globally together onto a common virtual space, more data are being collected, generated and shared through online processes and digital tools. While organisations harness data for business insights, innovation and growth, the increased data activities also presents a higher risk of data misuse and incidents.

Join us in this session for a recap on how the amended PDPA support businesses and enable better use of data to speed up recovery and innovate in the data-fuelled environment. You would also get to hear about IMDA's Data Protection Trustmark (DPTM) certification, and how it can help strengthen consumer and regulator trust to enhance your competitive edge in the digital economy.

This session brings together industry experts and leaders to share their perspectives and experiences in communicating the importance of protecting your PDPA in the various organisations and get to find out more about how IMDA's Data Protection Trustmark is all about. Join us for a webinar on 29 November 2021 at 4 pm.



Digital Learning Guide NEW!

Explore the 5 areas to advance digital transformation. Match your role from 12 possible digital superhero roles. Which one are you? Find out more!

Download the Digital Learning Guide at https://bit.ly/3ysFTi7

Dates and events are subjected to change without prior notice.
For more details, visit www.isca.org.sg

ISCA Members Recognition Ceremony: Recognising Members' Achievements and Milestones

Among other segments, ISCA honoured members who have attained 50 years of ISCA membership in 2020 and 2021

THE ISCA MEMBERS RECOGNITION CEREMONY was held on October 5 to celebrate the contributions and successes of our members, with more than 200 members tuning in to the virtual event from their homes and offices. In attendance were new Chartered Accountants of Singapore or CA (Singapore) members, as well as members who were conferred the Fellow Chartered Accountant of Singapore or FCA (Singapore) designation.

ISCA President Kon Yin Tong noted in his welcome address that ISCA is constantly seeking ways to enhance members' career mobility and employability, to help them achieve their professional aspirations. Sharing the limelight that day were the newly conferred Financial Forensic Professionals and Infrastructure & Project Finance Professionals, as well as the first cohort of members receiving the ISCA Professional Business Accountant (PBA) designation.

ISCA President Kon Yin Tong delivering the welcome address

Long-standing ISCA members were also honoured at the ceremony. Members with over 50 years of membership at the Institute were presented the "50 Years Milestone Award" with a specially designed plaque. Members with over 30 years of membership and are at least 70 years of age were awarded the "Life Membership" status with a certificate of Lifetime Membership. It was heartwarming to see many of our senior members participating in the event proceedings and giving their fullest support.

FCA (Singapore) Ang Pei Fen, ISCA Director of Executive Office and Practice Monitoring, led the members in reciting the ISCA Oath

FCA (Singapore) Deborah Ong sharing her career journey and professional experiences with members

At every Members Recognition Ceremony, the Institute invites a member who is an experienced industry leader to share valuable insights and experiences. Inspiring a new generation of ISCA members that afternoon was FCA (Singapore) member Deborah Ong, an independent director of SATS. Ms Ong is a retired partner with the Assurance Practice of PwC Singapore. She has more than 30 years of public accounting experience and is still actively contributing her wealth of knowledge and experiences to the business community.

In her sharing, Ms Ong encouraged young accountants to grab every opportunity, be open to challenges and allow themselves to be exposed to different aspects of work and roles as this will help them strengthen their professional standing and grow their experiences.

It was a heartfelt moment when the members took the ISCA Oath. For new members, it marked the start their lifelong journey to continually uphold the fundamental ethical principles and act in the public interest and, for existing members, it was a reaffirmation of their commitment.

We would like to thank everyone who took the time to join us at the Members Recognition Ceremony. The photos of the ceremony are available at the ISCA Facebook page (https://fb.com/ISCA.Official/photos).

SINGAPORE ACCOUNTANCY COMMISSION AND ISCA

THE FUTURE OF THE ACCOUNTANCY PROFESSION

Are We Adequately Prepared?

THE GLOBAL BUSINESS ENVIRONMENT IS CHANGING DRAMATICALLY, driven mainly by emerging technologies. Every profession is finding its way to adapt to the paradigm shifts in almost every aspect of work. What about the accountancy profession? Do the changes spell the beginning of a new position for accountants?

CHANGES IMPACTING ACCOUNTANTS

The new ABCs of technology – artificial intelligence (AI), blockchain and cloud computing – and many other intelligent types of technology are revolutionising the accountancy industry. A study on "Redefining the Finance Function with Job Redesign" found that these technological enablers will have a pronounced impact on Finance functions[1] within the next three to five years, where more than half of the job roles in the Finance function would be moderately or highly impacted due to technology adoption. Many are under the impression that the advent of new technologies will render the accountant irrelevant. However, the reality is far from this.

NEW OPPORTUNITIES

The evolving role of the accountant

Machines handle simple and repetitive tasks more efficiently than humans but they cannot replace human judgement. With the automation of repetitive tasks, the accountant will be freed to focus on the more strategic aspects of a business, and to provide professional insights and high value-adding specialised services to drive growth for businesses.

The study, "Market Demand for Professional Accountancy Services in the Asia-Pacific FY 2021-2024"[2], point to the rise in demand for advisory services. In Singapore, Business Advisory and IT Advisory jobs have increased by 29% and 187% respectively, from 2016 to 2019, according to the AE Census – the national accountancy census conducted by the Singapore Accounting Commission (SAC) on Accounting Entities.

With the automation of repetitive tasks, the accountant will be freed to focus on the more strategic aspects of a business, and to provide professional insights and high value-adding specialised services to drive growth for businesses.

PHOTO GETTY IMAGES

[1] ISCA, Lee Kuan Yew Centre for Innovative Cities at the Singapore University of Technology and Design & Ernst & Young Advisory Pte Ltd. (25 Aug 2020). Redefining the finance function with job redesign. https://isca.org.sg/resource-library/business-insights/future-of-profession/redefining-the-finance-function-with-job-redesign

[2] Singapore Accountancy Commission, Association of Chartered Certified Accountants & Shanghai National Accounting Institute. (18 May 2021). Market demand for professional accountancy services in the Asia-Pacific FY 2021. https://www.sac.gov.sg/market-demand-professional-accountancy-services-asia-pacific-fy2021-2024

PHOTO SHUTTERSTOCKS

New job roles

Today's new business environment has sparked demand for a proliferation of new job roles. The Skills Framework for the Accountancy sector identifies emerging skills required in the industry. It indicates a shift in demand to advisory skills such as Finance Business Partnering, and Business Innovation and Improvement. The automation of back-office procedures requires skills in Digital Technology Environment Scanning, Adoption and Innovation, Programming and Coding, and Cybersecurity. As digitalisation makes available volumes of a variety of data that need to be analysed, some data analytics skills in demand include an understanding of statistical programming languages, machine learning, econometrics, and data management.

New areas of growth

New high-growth areas are emerging where accounting expertise will be in critical demand. Sustainability is one area. Over the last few years, sustainability matters have come into sharp focus from a fad in the 1980s. The Singapore Green Plan 2030 was announced this year to achieve long-term net zero emissions as soon as possible. Businesses around the world see the need to integrate environmental, social and governance (ESG) factors into their business plan to gain a competitive advantage. The Singapore Exchange Regulation (SGX RegCo)[3] had proposed for climate-related disclosures to be made mandatory in sustainability reports and sought public consultation to subject these reports to assurance.

The Singapore Exchange Regulation had proposed for climate-related disclosures to be made mandatory in sustainability reports, and sought public consultation to subject these reports to assurance.

Increasingly, businesses are expected to quantify the returns on sustainability investments; ensure compliance with regulations in areas such as waste management, pollution and energy efficiency, and report a company's impact on ESG factors, to name a few tasks. On the international level, there is a rise in new areas of accounting, such as sustainability accounting, carbon emission accounting and climate change accounting. Accountants are uniquely placed within the organisations to extend their coverage on business performance reporting by playing a key role in assessing and disclosing climate risks as part of the corporate sustainability reporting process. Professional accountancy firms are also given an opportunity to expand their scope of services to advisory and independent review and assurance.

Another new high-growth area is in intangible assets (IA) and intellectual property (IP). In today's digital economy, IA and IP are the primary drivers of enterprise growth, estimated to make up more than half of global enterprise value. Singapore's vision is to become a global hub for IA and IP activities through the Singapore IP Strategy 2030 (SIPS 2030). The demand for valuation experts will grow as enterprises seek to value their IA and IP assets. This presents an opportunity to accountants who acquire a business valuation certification such as the Chartered Valuer and Appraiser (CVA) Charter to be part of the growing pool of valuation experts.

SUPPORTING THE DEVELOPMENT OF PROFESSIONAL ACCOUNTANTS

Accountancy professionals face an increasingly complex business environment. As their roles evolve towards that of a business partner and advisor, accountancy professionals would be required to provide more analyses, business-related advice and inputs on strategies. As such, they are required to continuously update their technical knowledge, deepen their skill sets, and keep up with evolving regulations and reporting requirements, to name a few. On top of a strong accounting foundation, continuous learning – upskilling, reskilling and new skilling – needs to happen at every level for accountants to keep abreast of the changes in this new business environment.

It is also beneficial for accountants to seek out specialisations that will enable them to brand and differentiate themselves. ISCA's specialisation pathways and certification programmes enable its members to learn relevant new skills and build expertise to enhance their professional standing in the future workplace.

[3] SGXRegCo. (26 Aug 2021). Consultation paper on climate and diversity. https://www.sgx.com/regulation/public-consultations/20210826-consultation-paper-climate-and-diversity

SINGAPORE CHARTERED ACCOUNTANT QUALIFICATION

The Singapore Chartered Accountant (CA) Qualification is the national accountancy qualification, and the pathway to qualify the new generation of CAs. Over just eight years since it was launched in 2013, it has gained international recognition and portability through membership reciprocal agreements with world-renowned professional bodies. It is currently mutually recognised with the Chartered Accountant qualifications offered by Chartered Accountants Australia and New Zealand (CA ANZ), Chartered Accountants Ireland (CAI), Institute of Chartered Accountants of Scotland (ICAS) and Institute of Chartered Accountants in England and Wales (ICAEW). It also offers an Asian perspective as it weaves in elements that meet the needs of Singapore and the Asian market. Completion of the programme leads to the ISCA membership and conferment of the Singapore CA designation. In Singapore, only Singapore CAs can practise as Public Accountants.

Supporting industry needs

The Singapore CA Qualification is benchmarked against other established qualifications, and regularly reviewed by its advisory committees, comprising industry practitioners and academics.

Examination questions reflect real-life situations, including topical areas such as e-commerce and COVID-19-related issues. To facilitate this, e-exams replaced paper-based exams to emulate today's digital working environment. Candidates are scored on their demonstration of critical thinking.

Candidates are also given good exposure in handling industry trends through their three-year practical experience in an Accredited Training Organisation (ATO) – a requirement to qualify as a CA (Singapore). ATOs are firms certified by SAC to develop Singapore CA Qualification Candidates.

Reducing programme duration

As the demand for more highly skilled accountants rises, three new initiatives were launched in 2020 to quicken the pace of completing the Singapore CA Qualification programme. Firstly, exemption from taking the Taxation module of the Professional Programme was introduced for candidates who had completed the Advanced Taxation module at the National University of Singapore (NUS), Nanyang Technological University (NTU) and Singapore Management University (SMU). Secondly, final-year Bachelor of Accountancy students from NUS, NTU and SMU are allowed to sign up for the Professional Programme from January 2021. Lastly, the number of examinations for the capstone module was increased to twice a year.

Diversifying talent

As businesses grow more complex, the industry will see a rise in demand for accountants with multidisciplinary backgrounds. The Foundation Programme of the Singapore CA Qualification was launched for this purpose. It is a prerequisite for undergraduates or graduates with recognised non-accountancy degrees who wish to take the Professional Programme. To widen the funnel of entry, Ngee Ann Polytechnic graduates with the Advanced Diploma in Accountancy can take the Foundation Programme of the Singapore CA Qualification under the SkillsFuture Earn & Learn Programme.

Wide career options

The number of Singapore CA Qualification candidates has been rising through the years.

There were 2,252 candidates in FY 2020/21 – a 13% increase over the previous financial year. Many have found the discipline versatile, leading to varied career paths. Lim Jia Jing, Business Risk Specialist, APAC region, UBS, said, "The Singapore CA Qualification has given me a broad perspective of accountancy. The professional knowledge and ethical behaviour I learnt have opened new career options for me. It has prepared me well for my current role, where I am part of a team that drives strategic risk initiatives for the APAC region in a bank."

ISCA FINANCIAL FORENSIC ACCOUNTING (FFA) QUALIFICATION

Singapore's global position as a trusted hub for business and finance demands zero tolerance of financial crimes.

Post-pandemic, fraudsters may perceive economic uncertainty and financial difficulties as a justification to commit financial crime by exploiting business vulnerabilities caused by accelerated digitalisation and remote working. With an increasing focus on financial forensics to uphold Singapore's reputation as a business hub, the ISCA FFA Qualification was launched in 2018. To ensure the programme contents remain relevant amid fast-changing business trends, ISCA continuously seeks feedback from stakeholders and industry partners to understand industry developments, and periodically refreshes the contents. Institutes of Higher Learning (IHLs) in Singapore are also introducing forensic accounting to the curricula of accountancy diplomas, degrees and post-graduate qualifications.

Other than the financial forensics technical knowledge areas like forensic accounting investigation process, evidence-gathering techniques, forensic data analytics and knowledge of the related laws and regulations, acquiring a "forensic perspective" is equally important. (A "forensic perspective" is an inquisitiveness which requires individuals to raise the right questions instead of taking information at face value.) These transferable knowledge and skill sets complement the core work of accountancy professionals across various specialisations such as internal and external audit, corporate governance, risk management, financial reporting, and compliance.

Under the ISCA FFA qualification, there are four skills-based modular certifications that stack up to its completion:

- Forensic Accounting and Investigation
- Digital Forensics
- Financial Crime
- Professional Requirements

Scan this QR code or visit isca.org.sg/ffa to find out more.

PHOTO SHUTTERSTOCKS

KYLIE YUAN
Assistant Director, Accountant-General's Department
Graduate of ISCA FFA Qualification

"The programme exposed me to new tools and techniques for analysing data, which benefitted me in the financial reporting work I do. Going through the programme also helped me develop a keen eye for anomalies and red flags of financial crime."

LEM CHIN KOK
Head of Forensic for Asia Pacific, KPMG Singapore

"ISCA members who are working in financial accounting, audit, compliance and risk management fields will find the skill sets imparted by the ISCA FFA Qualification highly complementary to their work. Our experienced team of workshop trainers will deliver practical financial forensics knowledge using case studies, and the public will have more confidence in the quality of work by professionals who are certified by the qualification."

ISCA INFRASTRUCTURE & PROJECT FINANCE QUALIFICATION (IPFQ)

Infrastructure investments are a key driver of economic recovery and long-term growth. Evidently, many Asian governments are picking up their infrastructure development speed, including Singapore.

The pandemic has also provided many developing nations the opportunity to "build back better" as they place stronger emphasis on sustainable projects while accelerating their infrastructure development. Recognising the significant funding gap for sustainable infrastructure in Asia, Temasek and HSBC are partnering to invest S$203.5 million for a debt financing platform to fund sustainable infrastructure projects such as renewable energy and storage, water and waste treatment and sustainable transport, with an initial focus on Southeast Asia.[4] Closer to home, it was announced in Budget 2021 that the Singapore government will issue green bonds on selected public infrastructure projects, with S$19 billion of public sector green projects already identified as a start.[5]

The growth and complexities of such infrastructure investments and development projects offer opportunities for specialists who are supporting the businesses, including accounting and finance professionals. Supported by Infrastructure Asia, the ISCA IPFQ will provide accountancy professionals with broadened perspectives of infrastructure projects and public-private-partnership (PPP) contracts. It is particularly helpful in terms of bridging their groundwork understanding of common jargons of the industry, the relevance of financing metrices, risk assessment and mitigation, and financial modelling of built projects. They will also gain hands-on experience in building financial models using Microsoft Excel based on case scenarios.

Individuals have the flexibility to complete three skills-based modular certifications that stack up to the ISCA IPFQ:

- Project Lifecycle
- Project Risks and Financing
- Contracts and Modelling

Scan this QR code or visit isca.org.sg/ipfq to find out more.

CAMILLUS YANG
Managing Director & CFO, aNew Energy Pte Ltd,
Graduate of ISCA IPFQ

"Given the massive potential of renewable energy investments in the region and policies in the region promoting PPP (public-private partnership), I found the course insightful to understand PPP structures better. It was also a great platform to network with other industry participants and hear their views and challenges. I benefitted from the diversity of discussions and knowledge gained from the course as it is applicable to renewable energy and where the sector is heading towards."

BRENDON JOYCE
Associate Partner, Infrastructure Advisory,
EY Singapore

"Accounting and other professionals equipped with project financing skills face considerable demand in the infrastructure sector, which is experiencing strong growth despite COVID-19. There is a need to build a strong pipeline of trained ISCA members to support Singapore's position as the infrastructure hub for Asia. The ISCA IPFQ syllabus is tailored to the industry's needs, with insights based on case studies from the ASEAN region and around the world."

THE FUTURE OF THE ACCOUNTANCY PROFESSION

With the rise of new job roles within the profession, there is a strong demand for accountants qualified in diverse areas. Continuous learning is a hallmark of accountancy professionals and taking specialisation pathways will equip accountants to take on upcoming roles. The future also beckons for those who can leverage on technology.

As the evolving business environment presents fresh opportunities and the prospect of a robust growth of accountancy jobs, individuals and firms which prepare for them will reap their benefits in the long run. ISCA

[4] Tan, S. (30 Sep 2021). Temasek and HSBC to invest $150 million for debt financing platform to fund sustainable infrastructure projects. *The Straits Times*. https://www.straitstimes.com/business/temasek-and-hsbc-to-invest-150-million-for-debt-financing-platform-to-fund-sustainable

[5] Tan, A. (16 Feb 2021). Budget 2021: Govt to issue green bonds on select public infrastructure projects. *The Straits Times*. https://www.straitstimes.com/singapore/budget-2021-govt-to-issue-some-19b-of-green-bonds-on-select-public-infrastructure-projects

This article was written by the Singapore Accountancy Commission and ISCA.

BY TEO SER LUCK

LIVING HEALTHIER, LONGER AND HAPPIER

The Case For HealthTech

THE CONSUMER MEDICAL LIFECYCLE IS SHIFTING TOWARDS PREVENTION, pre-prevention and lifestyle, instead of diagnosis and treatment. Technology applications impact areas such as nutrition, physical activity and mental wellness, playing a critical role in how well we live.

Every once in a while, technology changes the game. It rips up the rulebook, installs a roadblock on the established route and sends us off on an entirely different road. While this may be in the same direction, it is hopefully a new path free of roadblocks, bumps and traffic jams.

In the realm of healthcare, HealthTech is that new and exciting path and all the road signs point to a destination that sounds almost too good to be true.

HEALTHTECH INTO LIFESTYLE TECH

HealthTech has brought healthcare services far closer to our fingertips. With the COVID-19 pandemic accelerating demand, public healthcare expenses are expected to reach US$740 billion (S$1.01 trillion) by 2025. The overall accessibility of HealthTech has become especially pertinent in these times of lockdown.

Apps that facilitate medical consultations are experiencing strong growth. The lucrative nature of the industry has meant that traditional insurance firms such as AIA and Cigna now work together with service providers like Grab to increase accessibility and choice in meeting the rising demand for mobile and technology-enabled solutions.

HealthTech has lowered the barriers of entry to a healthy lifestyle through the accessibility of knowledge.

PHOTO SHUTTERSTOCK

This new level of healthcare access not only increases demand for its services but also changes perspectives. The focus is now beyond hospitals, diagnosis and treatment, and towards preventing illness by adopting habits that influence a healthy lifestyle.

Consumers are developing the habits they need to stay healthy. These might include learning to eat with purpose, maintaining an exercise routine with guidance and aspiring to greater levels of fitness and health with objectives. By maintaining their momentum and focusing on key enablers like sleep and recovery – and integrating these different habits with easily accessible data – a person's overall physical and mental wellness is optimised.

HealthTech has lowered the barriers of entry to a healthy lifestyle through the accessibility of knowledge. Widespread access to apps and services now gives consumers practical health-based solutions that seamlessly integrate with their daily lives.

Having an overview of the journey and a plan to integrate daily habits (for example, sleep patterns, nutrition and exercise), track progress and understand potential benefits are key drivers to healthy living; they promote convenience and commitment.

As perspectives shift towards a lifestyle embedded with good habits, HealthTech applications of the future will use artificial intelligence (AI) to intervene before the onset of a range of illnesses. This shifts the consumer medical lifecycle towards stages of prevention and pre-prevention, instead of diagnosis and treatment.

This shift creates a demand for solutions that lower the risk of contracting illness in the first place and, as consumers gain increased access to information and education, the adoption of a healthy lifestyle is within reach.

To facilitate a holistic, healthy lifestyle, attention must move away from medicines, doctors and hospitals, to more fundamental components of healthy living. Since the onset of the COVID-19 pandemic, more people have become aware that nutrition

PHOTO SHUTTERSTOCK

The focus is now beyond hospitals, diagnosis and treatment, and towards preventing illness by adopting habits that influence a healthy lifestyle.

and lifestyle play a critical role in how long and how well we live.

AN INTEGRATED APPROACH BEGINS WITH NUTRITION

Nutrition has a greater impact on our health than other daily habits. To be effective, nutritional goals have to be integrated with the other components of our lifestyle.

There is an increased demand for foods that achieve and sustain optimal weight and body composition based on the best available science to promote health and wellbeing. This in turn reduces the risk of diet-related conditions and chronic disease. By changing our eating patterns and consistently making healthy food choices, we can help to reduce the risk of these chronic diseases.

The latest National Nutrition Survey shows that Singaporeans' diet quality has improved, with local consumption of whole grains, fruits and vegetables rising, while substituting saturated fat with unsaturated fat. However, high sugar and sodium intake remain causes for concern. The next step is to address dietary needs, along with nutrition patterns, sleep, exercise and wellbeing within a wellness and lifestyle ecosystem. Blended perspectives on nutrition, fitness and mental health are key components in the quest for better lifestyle choices and the inculcation of good habits.

HealthTech thus becomes crucial in the convenient planning, adoption and tracking of these lifestyle habits, especially when consumers become more aware of the numerous aspects of a healthy lifestyle. Ultimately, the seamless transition to a life filled with healthy habits is only complete when the consumer recognises the relevance, meaning and enhancement to their lives.

Through the combination of access, AI and various mobile features, HealthTech has the potential to facilitate the purpose, outcome and review of these lifestyle goals. By embedding healthy habits from waking through to sleep and beyond, technology is truly the great enabler for a healthier lifestyle which would benefit many of us. ISCA

Teo Ser Luck is ISCA Advisor and an entrepreneur.
This article first appeared in the Q4 2021 issue of the SID Directors Bulletin published by the Singapore Institute of Directors.

AN EYE FOR TALENT

AT 18, ACCOUNTANCY TO SEAH GEK CHOO WAS SIMPLY THE QUICKEST WAY TO OBTAIN A PROFESSIONAL DEGREE AND A TICKET TO GOOD JOB OPPORTUNITIES. "I didn't even know what bookkeeping was about!" she admits candidly. But the course she picked out of pragmatism would become the cornerstone of her successful career.

Upon graduation, Ms Seah joined multinational professional services firm Deloitte, and has been with them ever since. "The mentorship and support from the people I am surrounded by, and from the organisation as a whole, has provided me a lot of opportunities to learn along the journey. From special projects and non-audit work to overseas mobility opportunities, I have been given a wide range of exposure – and I enjoy it because I get to learn a lot of new things, not just in terms of core capabilities," she says of her professional growth within the company, noting that being an ISCA member has also grown her professional network and given her opportunities to expand her skill sets. "Accountancy provided a solid foundation for me to take on these many different learning opportunities," the Chairperson for ISCA Corporate Governance and Risk Management Committee shares. "The work of an accountant requires one to interact with a large cross-section of people, spanning finance to HR, across different industries. This gives one a good overview of operations, and how different organisations work."

Seah Gek Choo, FCA (Singapore), Deloitte Southeast Asia Talent Leader

BUILDING PEOPLE IN TOUGH TIMES

Now into her 26th year with the company, the chartered accountant holds multiple roles. She is not only Deloitte Singapore's Audit and Assurance Partner, she is also the Southeast Asia and Singapore Leader for Deloitte Centre for Corporate Governance, which cultivates forward thinking and promotes dialogue with key influencers, business leaders, corporations and their boards, investors, accounting profession, academia and government on current and emerging corporate governance issues. Ms Seah is also the Talent Leader for Deloitte Southeast Asia, and the leader for Deloitte Singapore's SheXO Program, which supports the personal and professional development of women leaders.

As Deloitte's Southeast Asia Talent Leader, Ms Seah works with people from across a range of geographical locations and backgrounds. "The opportunities to work with a diverse team come with their own challenges, which call for a sensitivity and awareness of cultural differences," shares Ms Seah. "It is important to have an adaptive and inclusive mindset: you need to listen and understand their different situations in different places, and empathise in order to work well as a team." To reach such a level of understanding takes time, and Ms Seah takes the effort to speak to her counterparts in all 11 territories (10 ASEAN countries and Guam) every other week to maintain close ties. She admits though, that it would have been challenging to reach the same level of trust through remote communication had the relationships not been built before the pandemic. "That said, it is all about making the effort. I took over the regional role in the midst of the

> "The work of an accountant requires one to interact with a large cross-section of people, spanning finance to HR, across different industries. This gives one a good overview of operations, and how different organisations work."

CAREER HIGHLIGHTS

1995
Joined Deloitte Singapore
2006 to Present
Audit & Assurance Partner
2010 to 2020
Talent Leader, Singapore
2020 to Present
Talent Leader, Southeast Asia
2019 to Present
Southeast Asia and Singapore Leader, Deloitte Centre for Corporate Governance
2020 to 2021
Member, Corporate Governance and Risk Management Committee, ISCA
2021 to Present
Chairperson, Corporate Governance and Risk Management Committee, ISCA
2021 to Present
Member, Membership Growth and Engagement Committee, ISCA

"It is important to have an adaptive and inclusive mindset: you need to listen and understand their different situations in different places, and empathise in order to work well as a team."

pandemic," she adds. "Knowing that we wouldn't be seeing one another in person as much, I schedule regular calls to stay in communication with my team – even short touch points are good."

Strengthening relationships also aids the organisation in its growth. "How do we make sure that the organisation continues to evolve amid the pandemic? One key area is to create new talent initiatives that allow our people to develop," shares Ms Seah. To illustrate, Deloitte has adopted an innovative approach to rethink their secondment mobility initiative into a virtual programme. This allows participants to be fully immersed in an overseas working experience despite border movement restrictions. They report to and work alongside team members of the secondment country, and deal with clients from the location; they even operate at the same working hours as the overseas team. "Introduced last year, this gives our people opportunities for professional development," Ms Seah reveals. "At the same time, it has also opened doors for those who previously couldn't take part in traditional mobility programmes due to personal commitments that tie them down to Singapore."

Yet, building talent is not just about skills upgrading and increasing professional exposure, it is also about caring for each team member as a unique individual. As someone who takes pleasure in running to maintain physical wellness in her free time, Ms Seah pays equal attention to psychological wellness. "Mental health has become an important issue during the pandemic, especially when work seems to have no end with work-from-home arrangements," she asserts. "Some might also feel obliged to respond quickly at all times of the day, adding to the stresses of working in a virtual environment." To tackle the issue, Deloitte has created initiatives to address the importance of mental health, and dedicated resources for staff who need a listening ear to hear their stresses and anxieties. "To promote uptake of these initiatives, we recently held an awareness session for partners and leaders so that they can encourage more to talk about their problems, to acknowledge that it is okay to 'not be okay'," she highlights. "As leaders, it is important that we walk the talk. When our people see our leaders being transparent, it creates a safe environment for others to also share their concerns, building trust in the process."

LEADING THROUGH SUPPORTING

As the leader for Deloitte Singapore's SheXO programme, Ms Seah supports the personal and professional development of female leaders. Women, in her opinion, offer a different perspective on management. "Women tend to be more empathetic and adaptive," she observes. "If a staff comes to me with a concern, I wouldn't just zoom in on how to solve the work situation. Instead, my first thought would be to find out what problems he/she might be facing, and how I can help." It is important to take a balanced approach. "So while I like to know what is within my control, and give clear instructions and schedules for my staff, I give my team members the freedom and ability to exercise control over how they manage their work, and am ready to support them when they need help."

Outside of work, Ms Seah is a board member of Halogen Foundation Singapore, a values-based not-for-profit institution with a mission to inspire and influence youths to lead and become the positive change agents of their generation. She has also been volunteering at the Kampung Glam Community Club for over 10 years, and even ropes her teenage children in to help on the ground at times. "It is my way of giving back," she says. "Being a chartered accountant helps because a lot of charities need the expertise of professional accountants to give them a different perspective on how to run the organisation." She is on the audit and risk committee of Halogen Foundation Singapore, and had served as treasurer on the committee of Kampung Glam Community Club.

The support that Ms Seah gives in raising others up is perhaps reflective of the support she herself has received. Apart from the encouragement from her bosses to take on bigger roles and challenges, her family has also been a pillar of strength. "I don't really think I had to forgo anything to build my career. I have excellent family support and while my kids were young, my in-laws would care for them while I was overseas for work," she notes. "Many women feel guilty about this, but they need to let go and know that someone else can take care of them as well. In fact, you might even bond better with your family after some time apart," she reflects. She acknowledges that not everybody has the same aspirations. While she enjoys juggling her roles as mother, corporate leader and social worker, others might choose a different path. "Some people are raring to move faster while others might be content to move at a different pace. Empowering people is about letting them make their own decisions and, ultimately, take ownership of their own career." ISCA


BY STEVEN M. MILLER AND THOMAS H. DAVENPORT

ARTIFICIAL INTELLIGENCE AND WORK (PART 1)

Two Perspectives

THIS IS PART 1 OF A TWO-PART ARTICLE. PART 2 WILL BE PUBLISHED IN THE DECEMBER ISSUE OF THIS JOURNAL.

ONE OF THE MOST IMPORTANT ISSUES IN CONTEMPORARY SOCIETIES IS THE IMPACT OF INTELLIGENT TECHNOLOGIES ON HUMAN WORK. For an empirical perspective on the issue, we recently completed 30 case studies of people collaborating with artificial intelligence (AI)-enabled smart machines.[1] Twenty-four were from North America, mostly in the US. Six were from Southeast Asia, mostly in Singapore. We compare some of our observations to one of the broadest academic examinations of the issue. In particular, we focus our case study observations with regard to key findings from the MIT Task Force on the Work of the Future report.

MIT established its Work of the Future Task Force in 2018 as an "institute-wide initiative to understand how emerging technologies are changing the nature of human work and the skills required, and how we can design and leverage technological innovations for the benefit of everyone in society".[2] The Task Force focused on understanding the current and forthcoming impacts of advanced automation – in particular, AI and robotics – on the nature of work, on productivity and jobs, and on labour markets and employment trends. While the MIT Task Force mostly focused on the situation in the US, their field studies also included visits to German factories, and they extensively reviewed research studies on the workforce and employment impacts of automation – with emphasis on impacts of AI and robotics – from all over the world. They published their final report in November 2020.[3]

We address three major conclusions extracted from the MIT Task Force final report with our case study observations. In the first two areas, the MIT conclusions are entirely consistent with what we found. In the third area, we observed some differences between the MIT study and our findings. We conclude with an issue that we did not address in our research, but which is important for business and governmental leaders to address. Quotations in blue font are directly extracted from the MIT Work of the Future Task Force reports.

... it takes substantial effort over an extended period of time for a company to make the necessary complementary investments and adjustments – above and beyond the direct investments and efforts required – to assimilate these new technologies in ways that lead to substantial increases in productivity.

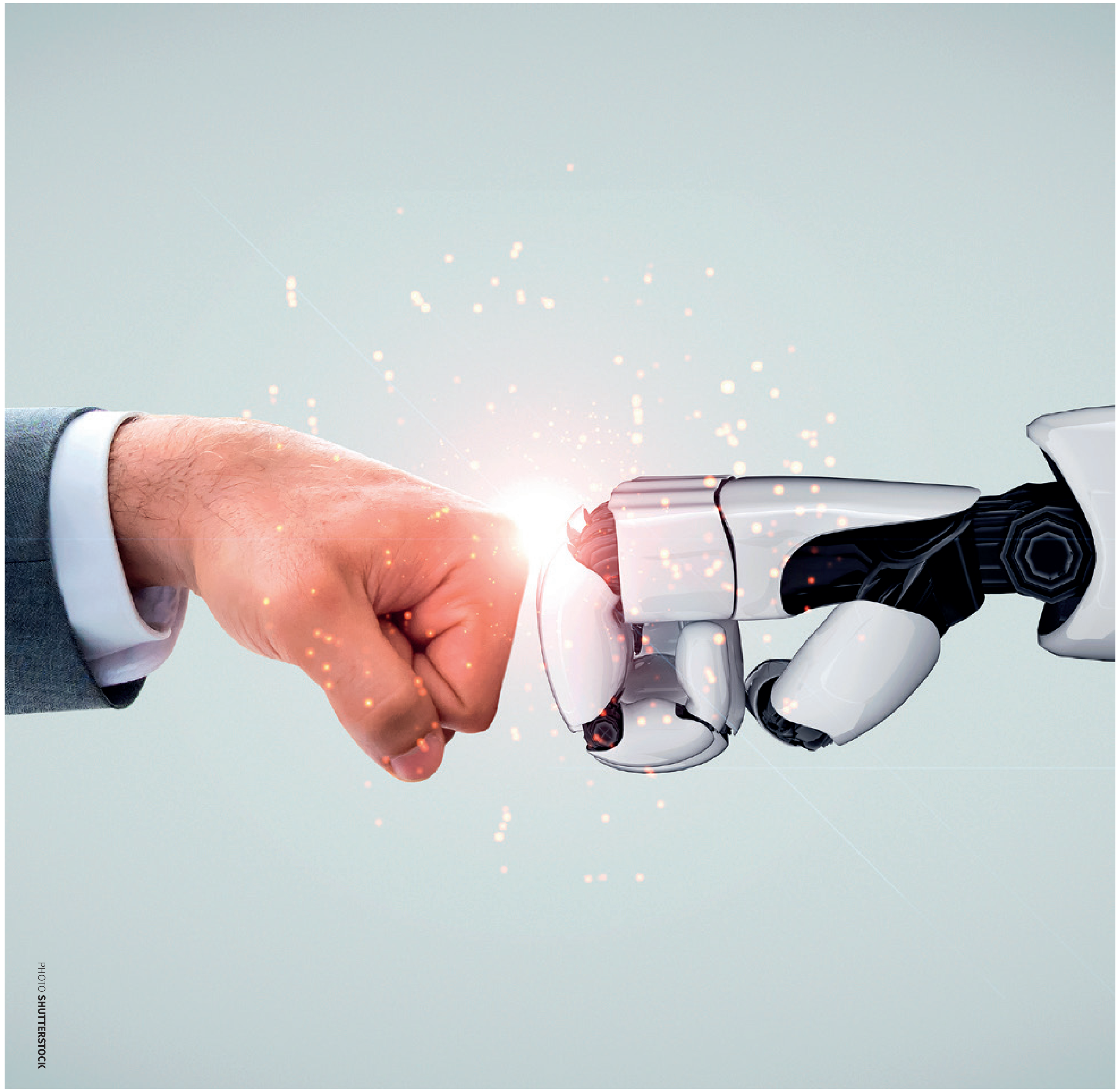


PHOTO SHUTTERSTOCK

[1] Davenport, T. H. & Miller, S. M. (forthcoming in 2022). *The Future of Work Now: People Collaborating with Smart Machines.* MIT Press.

[2] This description of the purpose of the MIT Future of Work Task Force is stated on their website homepage at https://workofthefuture.mit.edu/.

[3] This description of the purpose of the MIT Work of the Future Task Force is stated on their website homepage at https://workofthefuture.mit.edu/.

… the MIT Task Force report forecasts that neither the US nor the world at large is heading towards a future where there is not enough work for people to do as a result of greater usage of more sophisticated automation.

TECHNOLOGY IS NOT REPLACING HUMAN LABOUR ANYTIME SOON

The first of the three major conclusions addresses whether technology will replace human labour:

- **Technological change is simultaneously replacing existing work and creating new work. It is not eliminating work altogether.** No compelling historical or contemporary evidence suggests that technological advances are driving us toward a jobless future. On the contrary, we anticipate that in the next two decades, industrialized countries will have more job openings than workers to fill them, and that robotics and automation will play an increasingly crucial role in closing these gaps.

The MIT report acknowledges that intelligent machines thus far are capable of completing particular tasks, and not of performing entire business processes or even jobs. This reduces the likelihood that large-scale automation of human labour will take place. Indeed, in our case studies, almost all of the organisations involved said that AI and robotics had freed up workers to perform more complex tasks, but human workers had not lost jobs in significant numbers. Many of the companies we profiled were growing (in part because of their effective use of digital and AI technologies), so they needed all their human workers to keep up with growth. It is notable that the MIT Task Force predicts that over the next two decades, industrialised countries will have more job openings than workers to fill them, even with increasing workplace usage of AI and robotics and other types of technologies. In fact, in their 2019 Task Force report, they stated, "Contrary to the conventional narrative in which automation renders jobs increasingly scarce, we anticipate that, due to slowing labour force growth rates, rising ratios of retirees to workers, and increasingly restrictive immigration policies, over the next two decades, industrialized countries will be grappling with more job openings than able-bodied adults to fill them."[4]

Recent work by economists Daron Acemoglu and Pascual Restrepo provides evidence that, "indeed, automation technologies have made much greater inroads in countries with more rapidly aging populations", and that "the adoption and development of these technologies are receiving a powerful boost from demographic changes throughout the world and especially from rapidly-aging countries such as Germany, Japan and South Korea".[5] These findings are directly applicable to Singapore, given its population demography.

In 11 of the world's 12 largest economies, World Bank statistics indicate that fertility rates (births per woman) were well below replacement levels *and* the proportion of the population aged 65 and over was on an increasing trajectory.[6] The inevitable implication is that human labour will be in short supply. This is why the MIT Task Force report forecasts that neither the US nor the world at large is heading towards a future where there is not enough work for people to do as a result of greater usage of more sophisticated automation. More likely, in the decades

PHOTO SHUTTERSTOCK

to come, most of the world's largest economies will make even greater usage of AI, robotics and other recent and pre-existing types of automation in order to keep their economic output from shrinking, given their slowing or even declining labour force participation rates. The human labour that is available will be indispensable in making this transition.

ORGANISATIONAL CHANGES FROM AI ARE HAPPENING GRADUALLY

The second conclusion sheds light on the confusing dichotomy between the rapid pace of AI technology development as viewed from R&D and tech startup announcements, and the much slower pace at which organisations are able to absorb and productively harness AI and robotic capabilities. It is described here:

- **Momentous impacts of technological change are unfolding gradually.** Spectacular advances in computing and communications, robotics, AI, and manufacturing processes are reshaping industries as diverse as insurance, retail, healthcare, manufacturing, and logistics and transportation. But we observe substantial time lags, often on the scale of decades, from the birth of an invention to its broad commercialization, assimilation into business processes, widespread adoption, and impacts on the workforce… Indeed, the most profound labor market effects of new technology that we found were less due to robotics and AI than to the continuing diffusion of decades-old (though much-improved) technologies of the Internet, mobile and cloud computing, and mobile phones. This timescale of change provides the opportunity to craft policies, develop skills, and foment investments to constructively shape the trajectory of change toward the greatest social and economic benefit.

Across our 30 case studies, we also observed that new AI-based systems, their supporting platform and infrastructure, and their surrounding work processes, do not materialise easily or quickly. It takes time for an organisation to orchestrate the deep

[4] Auto, D., Mindell, D. & Reynolds, E. (Nov 2019). The work of the future: shaping technology and institutions. MIT Work of the Future Task Force. https://workofthefuture.mit.edu/research-post/the-work-of-the-future-shaping-technology-and-institutions/

[5] Acemoglu, D. & Restrepo, P. (10 June 2021). Demographics and automation. *The Review of Economic Studies.* https://doi.org/10.1093/restud/rdab031.

[6] See the World Bank Open Data website at https://data.worldbank.org/. According to their most recent data on GDP in current US dollars, the world's 12 largest economies were US, China, Japan, Germany, India, UK, France, Italy, Brazil, Canada, Russian Republic and Korea Republic (S. Korea). Statistics on fertility rate (births per woman) and population aged 65 and above (% of total) are available through this website. The only one country of the 12 largest economies where the fertility rate was not well below replacement level was India, where it was 2.2 births per woman, and declining.

collaborations and complex deployment efforts across the ecosystem of job roles within the company that need to be involved, and also with key external partners (vendors, and sometimes customers).[7]

Indeed, new AI developments are proceeding at breakneck speed, but bringing everything together across technology, people, and job roles in any real-world work setting is a very complex, time-intensive and iterative undertaking that extends over longer time periods.

The MIT Task Force elaborated on this slow adaptation process:

> As this report documents, the labour market impacts of technologies like AI and robotics are taking years to unfold … in each instance where the Task Force focused its expertise on specific technologies, we found technological change – while visible and auguring vast potential – moving less rapidly, and displacing fewer jobs, than portrayed in popular accounts. New technologies themselves are often astounding, but it can take decades from the birth of an invention to its commercialization, assimilation into business processes, standardization, widespread adoption, and broader impacts on the workforce.[8]

The "Productivity J-Curve" phenomenon described by Professor Erik Brynjolfsson and his colleagues[9] provides an explanation for why the observed rate of AI and robotics assimilation within a specific company is a slow and gradual process. In their research brief prepared for the MIT Task Force, they described the productivity J-curve phenomenon as follows:

> … new technologies take time to diffuse, to be implemented, and to reach their full economic potential. For a transformative new technology like AI, it is not enough to simply "pave the cow paths" by making existing systems better. Instead, productivity growth from new technologies depends on the invention and implementation of myriad complementary investments and adjustments. The result can be a productivity J-curve, where productivity initially falls, but then recovers as the gains from these intangible investments are harvested.
>
> Productivity growth is the most important single driver of higher living standards, and technological progress is the primary engine of productivity growth. Thus, it is troubling that despite impressive advances in AI and digital technologies, measured productivity growth has slowed since 2005.
>
> While there are many reasons for this, the most important is that technological advances typically don't translate into improvements in productivity unless and until complementary innovations are developed. These include many intangible assets such as new business processes, business models, skills, techniques, and organizational cultures. The need for myriad complementary innovations is substantial, especially in the case of fundamental technology advancements such as AI. Yet, these complementary innovations can take years or even decades to create and implement; in the meantime, measured productivity growth can fall below trends as real resources are devoted to investments in these innovations. Eventually, productivity growth not only returns to normal but even exceeds its previous rates. This pattern is called a productivity J-curve.

PHOTO SHUTTERSTOCK

Major improvements in productive capacity require substantial upfront as well as ongoing investments not only in the direct software and hardware aspects of the technology itself, but in all of the support efforts (the complements and adjustments) required to harness the new capabilities. Of course, there can be situations where a company can use a cloud-based AI application or other forms of packaged AI applications that do not require deep levels of integration with its existing technical infrastructure or processes. In such cases, the time span required to realise benefits could be short, and there may not be much or any productivity J-curve effect. But such situations would have an inherently smaller degree of impact on the company's productive capabilities exactly because

Major improvements in productive capacity require substantial upfront as well as ongoing investments, not only in the direct software and hardware aspects of the technology itself, but in all of the support efforts (the complements and adjustments) required to harness the new capabilities.

there is no deep integration with or improvements to existing infrastructure and processes.

Each of our 30 case examples was a snapshot at a particular point in time, always after the company had fully deployed and mostly or fully stabilised the system and had already started to realise tangible improvements in productive capacity. Most of the examples we studied were the result of multiyear efforts started years before the moment in time of our case example "snapshot." For example, while we were preparing our case study on AI-enabled financial transaction surveillance at DBS Bank, the company's Chief Analytics Officer Sameer Gupta shared this with us, "In my view, the reason this effort has been so successful is that it was not just about analytics and AI. The team looked at how they run the entire function of transaction surveillance, transforming how they do this function end to end. This transformation has been supported, supplemented and augmented by analytics. But even with the best analytics models, had we not done all the other changes involved in this transformation, we would not have obtained the very impressive results that we ended up achieving. I see this as a successful business transformation that was augmented by analytics."

Sameer Gupta's comment illustrates how AI system deployments require supporting implementation of many other types of business and organisational adjustments. In two of our case studies, large firms purchased a subsidiary to speed up their journey of capability development: MassMutual's purchase of Haven Life for digital underwriting and Kroger's purchase of 84.51° for data science capabilities. Despite acquiring entire organisational units with strong capabilities for creating and using the AI-based systems, the two large parent firms still had to go through a multiyear process to integrate both the technical capabilities as well as the "way of working" capabilities of these newly acquired subsidiaries into their overall ecosystems.

There is no escaping the reality that it takes substantial effort over an extended period of time for a company to make the necessary complementary investments and adjustments – above and beyond the direct investments and efforts required – to assimilate these new technologies in ways that lead to substantial increases in productivity. Senior management in both the private and public sectors overseeing investments in AI and other advanced automation projects need to understand and anticipate the extended time periods required for an organisation to make the necessary complementary investments, innovations and adjustments in order to go beyond just deploying the technology. They also need to anticipate that in terms of measuring economic returns over time, they will often see a productivity J-curve effect.

But it can be worth the effort. Our 30 case examples provide examples of productive capacity improvements either in terms of task or process output capacity, quality or a combination of both. ISCA

Look out for Part 2 of the article in the December issue of this *IS Chartered Accountant Journal.*

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[7] Davenport & Miller (May 2021). Working with smart machines. *Asian Management Insights 8* (1). Singapore Management University. https://cmp.smu.edu.sg/sites/cmp.smu.edu.sg/files/pdf/5_AMI15_SmartMachine.pdf

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A more indepth analysis and explanation is given in Brynjolfsson, Rock & Syverson, C. (Jan 2021). The productivity j-curve: how intangibles complement general purpose technologies. *American Economic Journal: Macroeconomics, 13*(1) 333–372. https://www.aeaweb.org/articles?id=10.1257%2Fmac.20180386

PHOTO SHUTTERSTOCK

BY DESI ARISANDI, PEARPILAI JUTASOMPAKORN, JUNAITHA GAFFOOR, LIM CHU YEONG

MACHINE LEARNING MODELS FOR DEBT MANAGEMENT

A Review Of Development Process

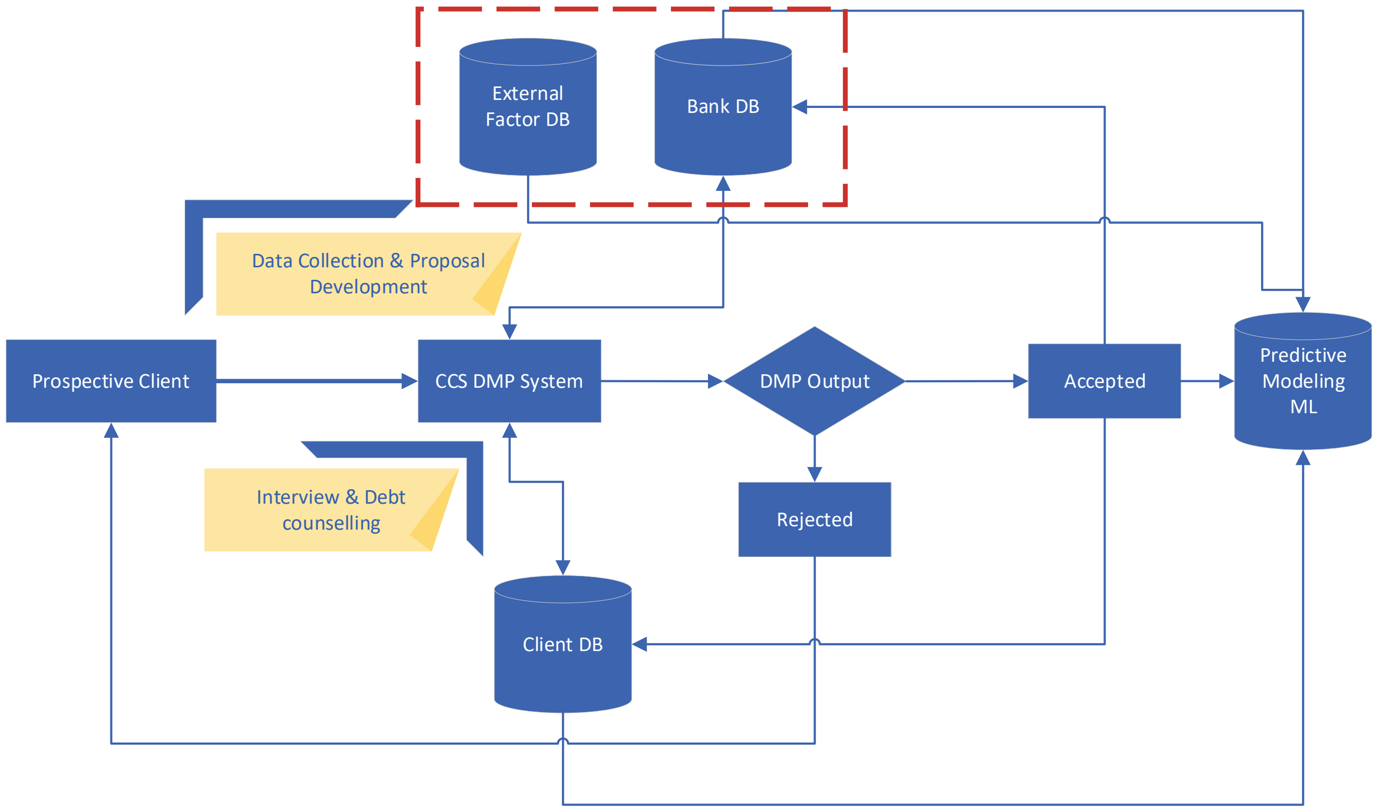
CREDIT COUNSELLING SINGAPORE (CCS), A CHARITY ORGANISATION, helps people in Singapore pay off their unsecured debts[1] through its Debt Management Programme (DMP). Since its inception in 2004, CCS has assisted over 34,000 clients under the DMP by working with financial institutions on individualised debt management plans. Amid rising default rates, limited staff resources, high number of credit cards in circulation and significant rollover balances[2] made worse by the COVID-19 pandemic, CCS sought to manage debt more effectively and efficiently. Hence, CCS partnered with researchers from the Singapore Institute of Technology (SIT) and Nanyang Technological University (NTU) to develop a predictive analytical model using machine learning that identifies clients with higher probabilities of default, to facilitate early intervention. Machine learning's predictive forecast enables CCS to make better resource decisions, which in turns helps CCS render more effective assistance to help-seekers.

In this article, we explain the process in which machine learning is applied within the context of consumer debt management specifically where the population consists of high-credit-risk clients. We apply machine learning techniques in CCS credit-risk management to monitor the probabilities of clients repaying their debt and to reduce default rates. A predictive analytical model using machine learning was developed using CCS proprietary data and public macroeconomic indicators as an early warning system on clients with high probabilities of default. The model provides information to support management decision on allocation of staff time to monitor clients with high probabilities of default, and improves the efficiency and effectiveness of CCS credit-risk management. Using new clients in April and May 2021, the model enabled CCS to identify 68 clients who have not yet missed payments but could fail at various points in their journey.

[1] Unsecured debts are those with no collateral, such as credit cards, personal loans or overdraft.

[2] Monetary Authority of Singapore (MAS) Monthly Statistical Bulletin, Table 1.17A: Credit and Charge Card Statistics. Note: 6.6 mil credit and charge cards and $5,403 mil rollover balance as of Q4 2020. https://eservices.mas.gov.sg/statistics/msb-xml/Report.aspx?tableSetID=I&tableID=I.17A.

Figure 1 DMP process



OVERALL FRAMEWORK

The research team gathered information on CCS business processes and identified potential improvements in processes to build the model. Figure 1 provides an outline on the DMP process after the implementation of the predictive model (machine learning). The process starts with debt counselling and proposal development. When CCS interviews and counsels prospective clients, CCS DMP accesses the client database (Client DB, Figure 1) to check if the client is a repeat or a new client; it also accesses the Bank DB (Figure 1) for the prospective client's bank information, and feeds new client data to the Bank DB.

Following the interviews, the DMP output is either a "reject" or an "accept" of the potential client. The process ends when the potential client has been rejected. If the client has been accepted, the client data is transferred to the developed machine learning model for continuous monitoring of the client's credit risks. the client data, together with the information from the banks (Bank DB, Figure 1) and macroeconomic factors (External Factor DB, Figure 1) are transferred to the developed machine learning model for continuous monitoring of the client's credit risks.

The machine learning model serves as an early warning system that identifies high probability of default clients and automates the processes. This allows CCS staff to spend more time following up with clients at higher risks of default in a timelier manner. Figure 2 provides an outline of how the machine learning model serves the continuous monitoring function. The model provides the client's default likelihood (that is, clients more likely to default) and default timeframe (that is, when clients are likely to default). The machine learning model is also fed changes in policies/regulations and/or changes in client personal data. CCS works with these clients and their related banks earlier on payment solutions and mitigates defaults by clients.

DEVELOPMENT PROCESS

Quantitative credit risk measurement has evolved from traditional statistical methodologies towards advanced machine learning methods. Simply put, in machine learning, the machine can dynamically learn iteratively and adjust its models from the outcomes of past inputs and outputs.[3] Explainable classification versus "black box" machine learning techniques provide trade-offs between transparency and model accuracy. CCS is of the view that the "black box" model works better than traditional statistical regressions as the "black box" model can pick out clients before they miss payments.

Figure 3 provides the overall stages of the project implementation that involved close collaborations between CCS and the research team. There were three stages in the process.

[3] "Machine learning is a method of teaching computers to parse data, learn from it, and make a determination or prediction regarding new data. Rather than hand-coding a specific set of instructions to accomplish a particular task, the machine is 'trained' using large amounts of data and algorithms to learn how to perform the task." Bacham, D. & Zhao, J. (Jul 2017). Machine learning: challenges, lessons, and opportunities in credit risk modelling. Moody's Analytics Risk Perspectives. Managing Disruption. Volume IX. https://www.moodysanalytics.com/risk-perspectives-magazine/managing-disruption/spotlight/machine-learning-challenges-lessons-and-opportunities-in-credit-risk-modeling

Figure 2 Continuous monitoring systems

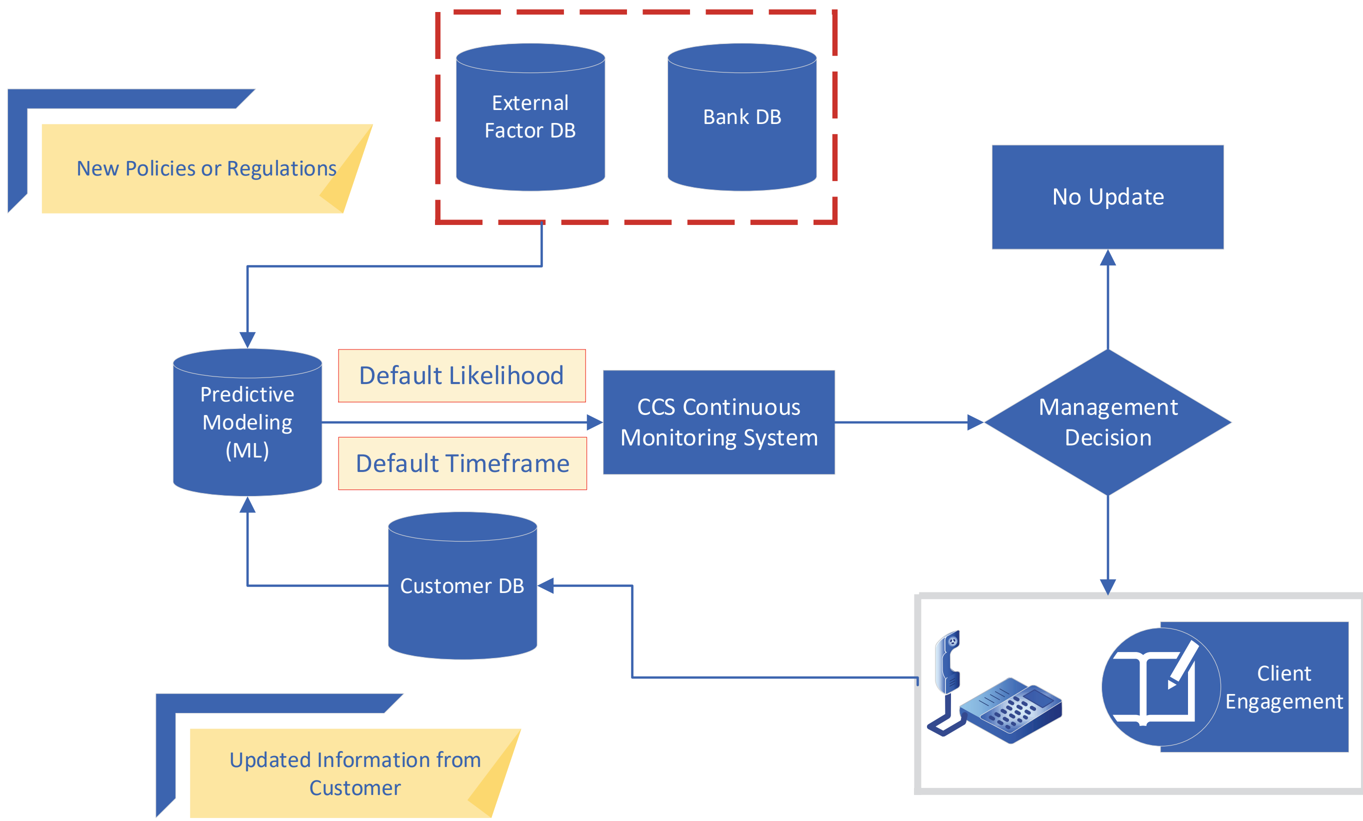
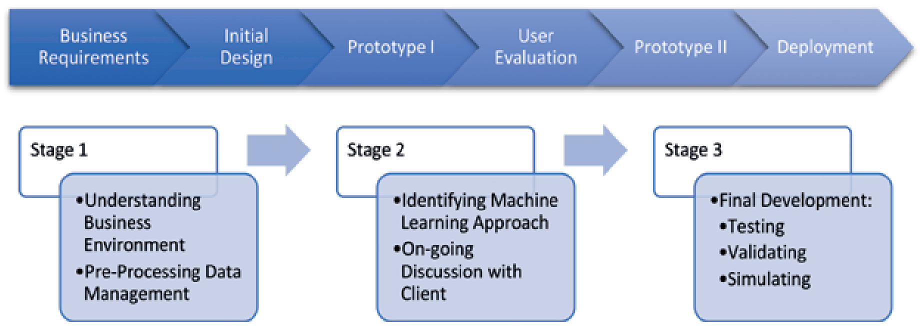


Figure 3 Overall project phases



Stage 1: Understanding business environment and data management

The team gathered business requirements from CCS to develop the models. Discussions and interviews were conducted to ensure the team had a comprehensive understanding of the CCS business processes. During the enquiry process, the team also collected relevant documentation, for example, registration forms and organisation charts, to support model development.

In Stage 1, the model incorporated three main categories of data (Figure 4). The first category (Type 1) comprised macroeconomic indicators, for example, Singapore unemployment rate. CCS proprietary data (Type 2), which was collected under the strict protocols of Personal Data Protection Act (PDPA), was the second type of dataset. This dataset was used to create the "calculated field" data (Type 3).

The Exploratory Data Analysis (EDA) process was implemented to understand the initial sample from CCS. From this analysis, various descriptive charts were developed for discovering patterns to foster hypothesis development and refinement. Data cleaning was carried out to remove missing values and re-code the data category to facilitate model building.

Figure 4 Data structures

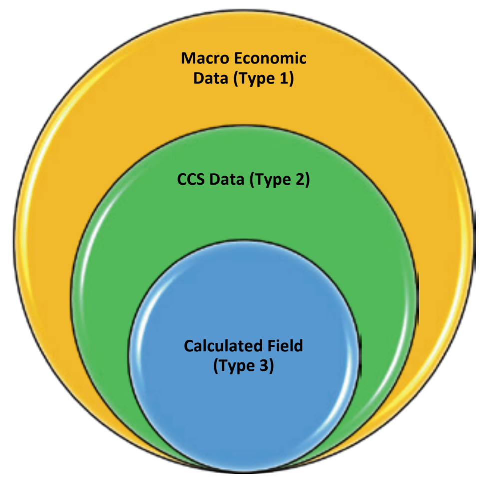
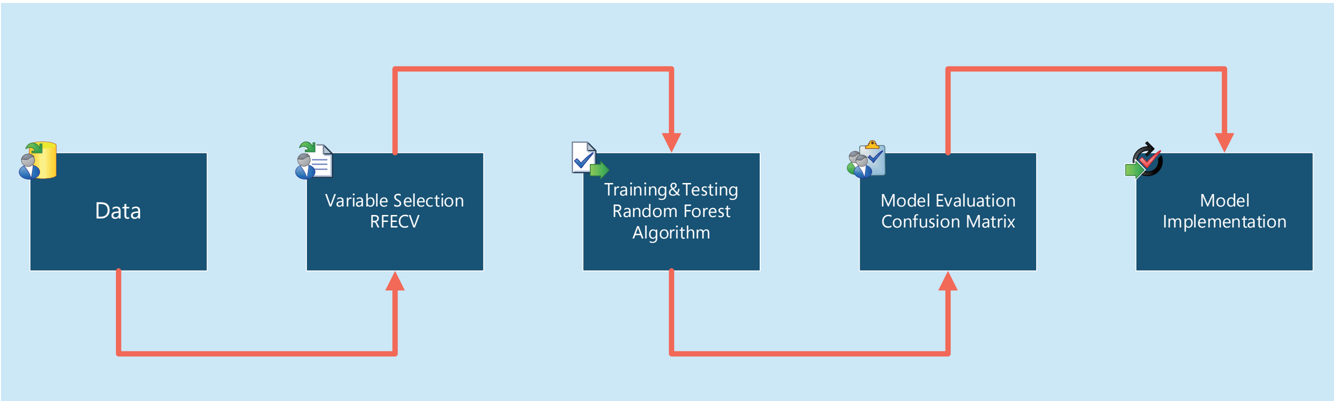


Figure 5 Model development flow



Stage 2: Identify machine learning approaches

Machine learning approaches to predict consumer credit risk has gained traction over the recent decade. They extend traditional statistical methods and are emerging fields of research. We used the dataset gathered and developed in Stage 1 to select the most appropriate machine learning technique – classification technique – for predicting default rates.

Classification is the process of differentiating given elements into two distinct binary groups based on classification rules. Using the CCS datasets, the machine learning probability of default output, together with default threshold, classified CCS clients as discrete classes of "default" and "non-default".

This supervised machine learning application trains a model on a set of samples with known classes (called "training sample") and applies that model to new samples with unknown classes. In classifications, the key goal is to predict output categories for new samples based on what the model has learned from its training sample.

An advantage of using binary classification models is that it is easy to understand. The real-world application of binary classification is unlimited. In the accounting and auditing field, binary classifications can be used to identify frauds, internal control risks and financial statement misstatements. However, a limitation occurs when one class contains a very small number of records. With this imbalanced dataset, the machine may have difficulties identifying features that are crucial for modelling.

Stage 3: Final development

In developing the model, the research team used python programming to train and test the model. Figure 5 shows the overall flow of model development. The model development flow starts with data inputs from Stages 1 and 2, followed by variable selection using RFECV (recursive feature elimination and cross-validation selection).

Figure 6 RFECV variable selection

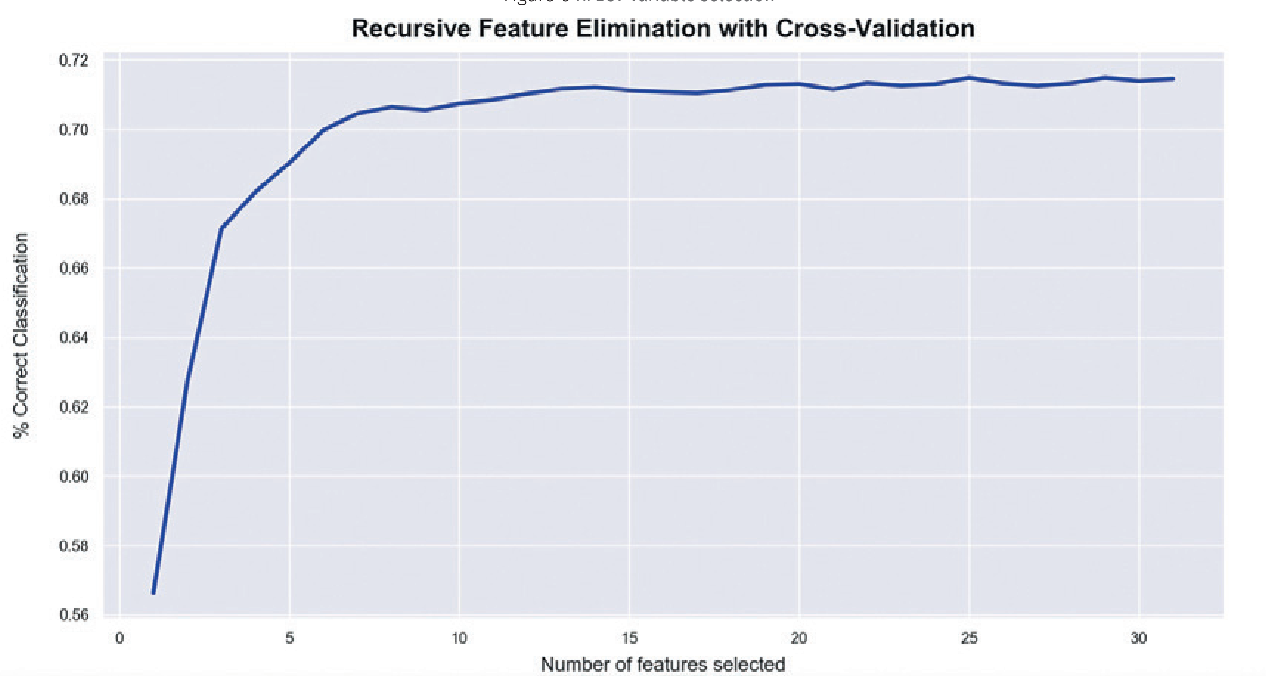


Table 1 Machine learning model selection

Methods	XGBoost Classifier	Bagging Classifier	Random Forest Classifier
Description	An ensemble tree model improves by boosting, and combines multiple tree models with lower accuracies into one model with higher accuracy (Ren et al., 2017[4]).	This method is designed to improve the stability and accuracy of machine learning technique for classification and regression. The basic process of this method is reducing the variance by randomisation procedure and assembling smoother result (Zareapoor and Shamsolmoali, 2015[5]).	This method combines the output of multiple decision trees to reach a single output. It adds features on the decision tree by selecting subsets of features that have low correlations. This approach reduces the risk of overfitting, provides flexibility, and determines feature importance (IBM Cloud Education, 2020[6]).
Average	74%	87%	88%

RFECV (Figure 6) is a method of selecting variables such that the accuracy level is optimal. We considered a subset of variables with the greatest impact on our targeted classifications. From more than 40 features, the personal economic indicators, such as real income (gross income minus total expense) and loan outstanding balance, dominate the effectivity of predictive modelling. In addition, the feature from Type 1 data displayed stronger correlation for the second model. This was because the second model predicted the time of client default, while the first model predicted the client that was likely to default. Hence, long-term macroeconomic features influenced the second model more than the first model.

Following the RFECV process, the next step involved selecting the appropriate machine learning model where the concept of decision tree was applied. A decision tree is a tool in decision analysis, where it can be visually utilised to explicitly represent decisions. It is commonly used in data mining for deriving a strategy to reach a particular goal. One weakness in decision trees is its inaccuracy. Decision tree learning will create either over-complex trees that do not generalise the data well (that is, overfitting) or become unstable because small variations in the data may result in a completely different tree being generated (that is, variance). Some alternatives to overcome such weakness can be done through methods like bagging and boosting. One subset of bagging is the Random Forest. This algorithm builds multiple decision trees and merges them together to get a more accurate and stable prediction.

Our project used prior literature study to determine the classification algorithm category to select. The study compared three machine learning methods: Extreme Gradient Boosting Classifier (XGBoost), Bagging Classifier, and Random Forest Classifier. Table 1 shows the average accuracies of methods from training, testing, and validation. We applied the Random Forest Classifier based on the results.

As the nature of the dataset was considered as imbalanced dataset[7], we had to take several steps to ensure that the selected model produced the optimal results. The first step was to resample the dataset using different testing and training ratios and upsampling the rare sample (defaulted). The second step was to identify the proper evaluation matrix. A confusion matrix was implemented to describe the performance of the classification models in a set of test data with actual classes. In addition, the Receiver Operating Characteristics curve (ROC-curve) was used to determine the performance of classification between the default and non-default of the trained model.

Two machine learning-based models were built to predict (i) clients with high probabilities of default (Model 1), and (ii) the default timeframe for those clients with high probabilities of default (Model 2). We measured the effectiveness of the models and found that Model 1 exhibited a high accuracy in predicting default and non-default clients. Model 2 incorporated a Multiclass Machine Learning algorithm to predict the time customers will default. As the data has many variations of timeframe output, the data preparation grouped this feature into categories.

For Model 2, accuracy, precision and recall were relatively lower than for Model 1. One potential reason was the smaller dataset available for analysis. As Model 2 focused on predicting the timeframe of default clients, the records with non-default clients were excluded from the model.

Table 2 Output categories

Category 1	Category 2	Category 3	Category 4	Category 5
0 to 6 months	6 to 12 months	12 to 18 months	18 to 24 months	>24 months

SUMMARY

Overall, the project findings help to support management decision making on resource allocation and optimising outcome. The predictive analytical model provides CCS staff with insightful information on key variables that affect the clients' ability to service their debts and has aided CCS in being ahead of the curve in flagging higher-risk clients. This allows CCS to offer additional services as well as initiate closer monitoring and take prompt action, thus reducing the chances of creditors terminating the DMP.

CCS General Manager Tan Huey Min sums up the contribution succinctly, "This collaborative effort helped CCS identify ways to fulfil its social objective of assisting clients in building financial resilience and beginning a new life free from a debt problem." ISCA

[4] Ren, X., Guo, H., Li, S., Wang, S. & Li, J. (2017). A novel image classification method with cnn-xgboost model. In: Kraetzer, C., Shi, Y. Q., Dittmann, J. & Kim, H. (eds). Digital Forensics and Watermarking. IWDW 2017. Part of *Lecture Notes in Computer Science*, vol. 10431. Springer, Cham. https://doi.org/10.1007/978-3-319-64185-0_28

[5] Zareapoor, M. & Shamsolmoali, P. (2015). Application of credit card fraud detection: based on bagging ensemble classifier. *Procedia Computer Science*, vol. 48, 679–685, ISSN 1877-0509. https://doi.org/10.1016/j.procs.2015.04.201

[6] IBM Cloud Education. (7 Dec 2020). Random Forest. IBM Cloud Learn Hub. https://www.ibm.com/cloud/learn/random-forest

[7] It is important to note that imbalanced dataset is common in credit risk due to much lower default data. Credit Bureau Singapore (2021) reports the default rate (for credit card and personal loans in Q1 2021, for different age groups) as 0.057% to 0.427%. When compared to practitioners like banks and lending institutions, our dataset consists of high-credit-risk individuals with much less imbalanced dataset. Credit Bureau Singapore (2021). Consumer Credit Index Issue 18 (Jan–Mar 2021). Credit Bureau Singapore. https://www.creditbureau.com.sg/pdf/CONSUMER-CREDIT-INDEX-Q1.pdf

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BY JAYMEE NG

INSTITUTIONAL INVESTORS AND CLIMATE CHANGE

Are They Taking Action?

CLIMATE CHANGE, including global warming and an increased risk of extreme weather events from heat waves to storms and floods, is widely considered one of the greatest existential threats facing humankind. Perhaps recognising the influence exerted by financial markets in policing firm behaviour, environmentalists have, over the last decade and a half, accelerated their efforts to advocate market participants take a more responsible approach in their investment decisions. For example, a campaign called Fossil Free: Divestment[1] that aims at stopping investment in fossil fuel companies has attracted the attention of high-profile organisations such as the philanthropic foundation Rockefeller Brothers Fund.

But how successful have environmental campaigners been in affecting behavioural change among financial market participants? Are institutional investors staying away from carbon-intensive stocks as a result?

[1] Fossil Free: Divestment. What is fossil fuel divestment? https://gofossilfree.org/divestment/what-is-fossil-fuel-divestment/

[2] IPCC. (9 Aug 2021). Climate change widespread, rapid, and intensifying. https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/

A group of researchers at The Chinese University of Hong Kong (CUHK) Business School think they have the answers.

The researchers – Darwin Choi, Gao Zhengyu and Jiang Wenxi, all Associate Professors at CUHK Business School's Department of Finance – found that investors have significantly reduced their investments in carbon-intensive stocks since around the time the financial sector began to become more aware of environmental issues around 2015, and this wave of divestment has even led to increasing pressure on publicly listed firms to take a greener approach in their business operations and reduce their carbon footprints.

The new research results also come amid the recent publication of a comprehensive UN report[2] that sounded a dire warning on climate change, noting that greenhouse gas emissions have already passed a point of no return that will prevent temperatures from rising over at least the next two decades.

The trio of CUHK researchers have long been studying the influence of global climate change on financial markets. An earlier paper, "Attention

> **"Our results suggested that big institutional investors are avoiding high-carbon-emission stocks just like they are doing with so-called 'sin' stocks such as tobacco, alcohol and gambling,** because these companies made products that were considered unethical."

PHOTO **SHUTTERSTOCK**

... a one standard deviation increase in climate awareness was linked to a 3.49% increase in capital expenditure, a 6.49% increase in R&D investment and a 2.4% increase in green patents.

to Global Warming"[3], argued that retail investors pay more attention to climate change and sell down high-emission stocks after experiencing extreme weather conditions personally. Following on from this earlier research, they turned their attention to how climate change has impacted the heavyweight players on the investment sector – its institutional investors – in two new studies.

"Global warming is the reality that we live in. We already knew from our previous studies that climate change is an issue that affects investment decisions for individual retail investors that purchase stocks with their own money," says Prof Choi. "What we wanted to find out was whether it had a similar effect on the larger players in the investment market. Do the big market players from sovereign wealth funds, asset managers, university endowments, pensions to insurance companies, that invest money on behalf of other people and who have comparatively greater clout and influence, behave in a similar way?"

MEASURING DIVESTMENT

In one study, titled "Measuring the Carbon Exposure of Institutional Investors"[4], the three CUHK academics first constructed a new scoring system to categorise listed companies in the US as either high- or low-emissions. They then used this system to analyse how institutional investors with more than US$100 million assets under management (AUM) reacted to climate change.

The study found that this group of institutional investors reduced their holdings of high-emission stocks. They went from overweighting carbon-intensive stocks (relative to the market index) by around 0.5% in 2001, to underweighting them by between 0.2% and 0.7% in the period since 2015. Such a trend was not observed before the year 2000 when climate change awareness was less widespread.

"Our results suggested that big institutional investors are avoiding high-carbon-emission stocks just like they are doing with so-called 'sin' stocks such as tobacco, alcohol and gambling, because these companies made products that were considered unethical," Prof Gao says.

"Having settled this point, what we then wanted to find out was whether divestment by such a big and powerful segment of investors would actually make these environmentally 'sinful' companies do good," Prof Gao says.

INSTITUTIONAL PRESSURE

This is the question that the three CUHK researchers sought to address in their study, titled "Global Carbon Divestment and Firms' Actions"[5], which was conducted in collaboration with Zhang Hulai at Tilburg University. In this study, the researchers looked into how climate change affected a listed company's stock price valuation and whether this channelled down into its business decisions.

The researchers used data from 23 countries to measure financial institutions' exposure to stocks in high-carbon-emission industries, which are mainly in five categories: energy, transport, building, industry (such as those producing chemicals and metals) and agriculture/forestry. They then calculated a carbon ratio, which they defined as the weight of total high-emission stocks in a financial institution's stock portfolio. The study results showed that the aggregate carbon ratio fell over time relative to the market index, and the downward trend happens at the same time as when steam began to pick up behind climate campaigns

[3] Choi, D., Gao, Z. & Jiang, W. (14 Feb 2020). Attention to global warming. *Review of Financial Studies*. http://dx.doi.org/10.2139/ssrn.3180045

[4] Choi, Gao & Jiang. (13 Apr 2020). Measuring the carbon exposure of institutional investors. *Journal of Alternative Investments*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3549648

[5] Choi, Gao, Jiang & Zhang, H. (8 Jan 2021). Global carbon divestment and firms' actions. https://ssrn.com/abstract=3589952

that sought to influence stock market investment behaviour such as the Fossil Free: Divestment campaign and Go Fossil Free campaign, as well as the adoption of the Paris Agreement – the international treaty on climate change – around 2015.

According to the study, the ratio of a high-emission listed company's market capitalisation to its total earnings (also known as a price-to-earnings or PE ratio), tended to be lower after 2015 if the company is located in a country with high climate change awareness. This was calculated based on a survey that sampled individuals' opinions on climate change from 111 countries. It found that a one standard deviation increase in climate awareness is linked to a 6% decrease in the high-emission public firms' price-to-earnings ratio, meaning that the company may be undervalued.

In addition, the study found that high-emission public firms situated in countries with strong environmental awareness also reduced their emissions from 2016 to 2018. It found a one standard deviation in climate awareness increase was associated with a 5.5% decrease in emissions by high-emission public companies. Furthermore, these public companies also increased their expenditures on upgrading their physical assets, research and development (R&D) and filed more patents on products or processes that can provide benefits to the environment. Specifically, a one standard deviation increase in climate awareness was linked to a 3.49% increase in capital expenditure, a 6.49% increase in R&D investment and a 2.4% increase in green patents.

> **"Environmental awareness is a theme that we expect to continue to exert an overarching influence on finance** and this will grow with the proliferation of socially responsible investment funds…"

GROWING ENVIRONMENTAL LOBBY INFLUENCE

However, the same results were not observed among high-emission private firms. The researchers thought that perhaps private companies did not face the same amount of divestment pressure from large institutional investors.

"We're not privy to the specific conditions under which individual firms make their operational decisions and thus, we cannot claim that there's a causal link. However, at the very least, we are able to confidently say that the financial decisions made by the big institutional players in the investment sector, as well as those made by publicly listed firms that affect their daily operations, go in the same direction. That direction is one that leads to lower carbon emissions and helps combat climate change," Prof Jiang says.

"What this means is that campaigning by environmentalists has led and is leading to a change in behaviour among large institutional investors, and this is possibly filtering down to real decisions that businesses make on the ground.

"Environmental awareness is a theme that we expect to continue to exert an overarching influence on finance and this will grow with the proliferation of socially responsible investment funds and, as our concerns over climate change become greater, the hotter our planet gets," says Prof Jiang, adding that a possible avenue for future research is to look into greater detail the mechanism under which institutional investor pressure can lead to changes in operational behaviour by companies that lowers carbon emissions. ISCA

Jaymee Ng is Principal Writer, China Business Knowledge@CUHK. This article was first published in China Business Knowledge at The Chinese University of Hong Kong Business School. Reproduced with permission.

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RCEP BENEFITS FOR SINGAPORE BUSINESSES (PART 1)

Trade In Goods And Rules Of Origin

WITH THE RATIFICATION OF THE REGIONAL COMPREHENSIVE ECONOMIC PARTNERSHIP (RCEP) IN APRIL THIS YEAR, the Ministry of Trade and Industry has published three supporting booklets on how the private sector can use RCEP to their advantage. This three-part feature kicks off with an overview of one of the booklets, *Understanding Trade in Goods and Rules of Origin Under the RCEP: Benefits for Businesses.*

The RCEP is a Free Trade Agreement (FTA) between the ASEAN member states and five of their FTA partners, to unify preexisting bilateral agreements, reduce tariffs and red tape, and unify rules of origin. This will facilitate the expansion of regional trade and investment and contribute to global economic growth and development among the RCEP countries.

The countries of the RCEP are the 10 ASEAN member states (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) and five ASEAN FTA Partners (Australia, China, Japan, New Zealand and the Republic of Korea). These 15 countries collectively account for 30% of the world's population and 30% of global GDP. Thus, the RCEP is the world's largest trade bloc to date. The RCEP was signed at the 4th RCEP Leaders' Summit on 15 November 2020, and it has been ratified by Singapore, Thailand, China and Japan. Nine RCEP members are among the top 15 trading partners for Singapore, and account for close to 50% of Singapore's merchandise exports. With regard specifically to the trade in goods, RCEP aims to eliminate import customs duties for close to 90% of goods from RCEP countries.

VALUE TO SINGAPORE BUSINESSES

With trade protectionism on the rise and unexpected disruptions hindering the free movement of goods, RCEP arrives at a critical time to boost businesses' supply chain diversification efforts. There are several material benefits for Singapore businesses, including:

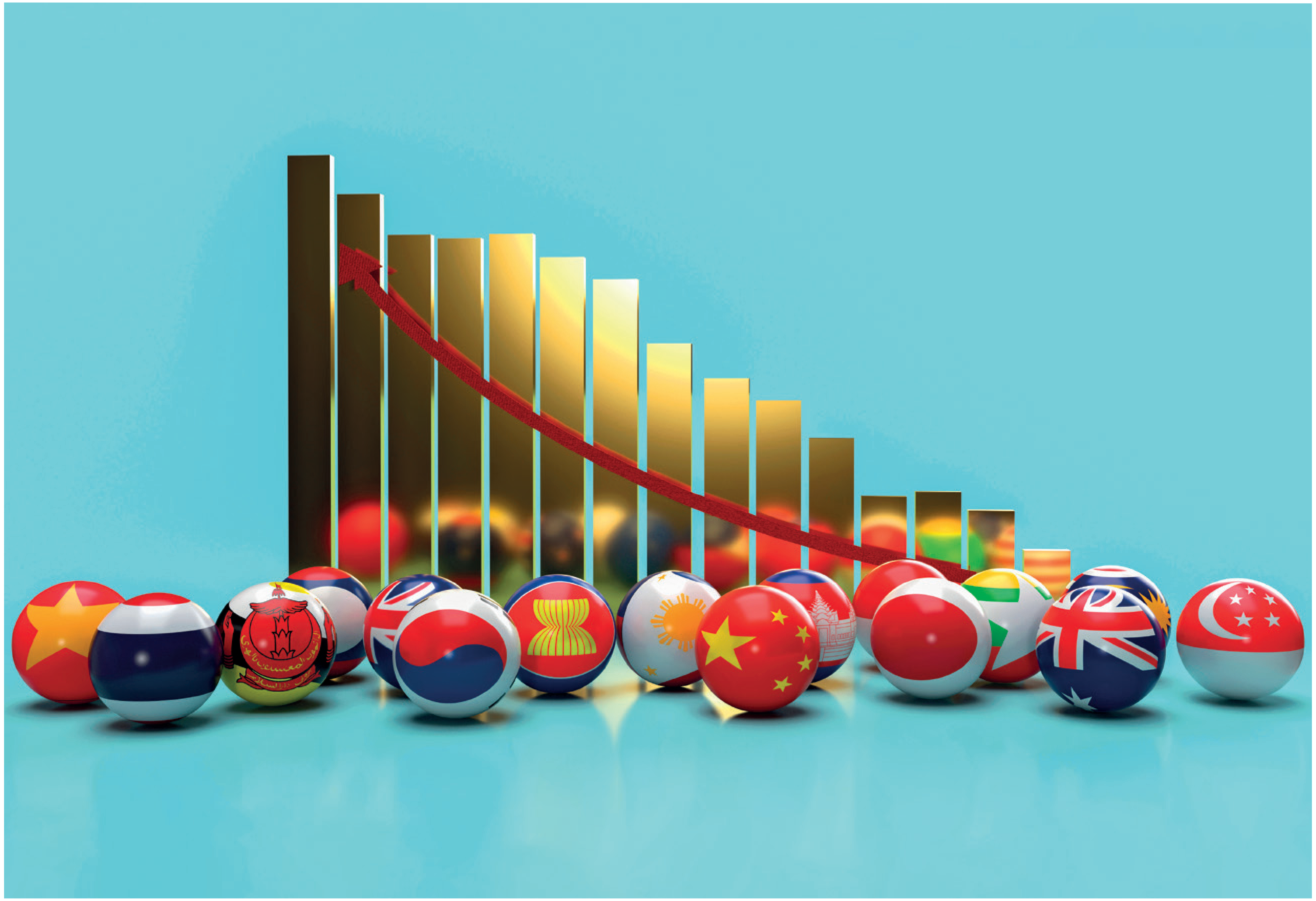
- Reduced or eliminated duties, under one set of rules;
- Streamlined customs procedures;
- Increased flexibility for manufacturers to source raw and semi-raw materials.

The above will benefit Singapore-based manufacturers and wholesale traders doing Drop Shipping, and wholesale traders with regional distribution hubs in Singapore. This will lead to several benefits, which are detailed in Part B:

1) Saving customs duties;
2) Reducing logistic lead times and related costs;
3) Increased operational certainty;
4) Advantages for specific industries.

As noted in Part B, the benefits of RCEP are contingent on several factors, most significantly certifying that RCEP rules of origin are followed. These rules are worth looking into because they may be easier to satisfy than those under the existing FTAs. It is also important to note that RCEP only enters into force 60 days after six ASEAN member states and three other non-ASEAN RCEP signatories have ratified the agreement. RCEP countries are currently finalising the formats of the preferential Certificate of Origin, the Declaration of Origin, and the Approved Exporter application process. The information will be available on Singapore Customs' website when the details are finalised.

> **With regard specifically to the trade in goods,** RCEP aims to eliminate import customs duties for close to 90% of goods from RCEP countries.



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PART B: OPERATIONAL GUIDE TO USING THE RCEP

1) Saving customs duties

With RCEP, businesses can enjoy preferential customs duties on goods exported to the RCEP countries, providing the goods meet the Rules of Origin requirements. In considering RCEP preferential custom duties, there is a process to determine eligibility.

Step 1: The receiving country will first determine the Harmonised System (HS) code.

Step 2 & 3: Then it will determine if those goods originate in an RCEP country and if they would normally incur a duty. Should the goods move on to another country, this must also be an RCEP country, and the goods must meet the requirements of the RCEP. If any of these are not met, the FTA agreements will prevail.

Step 4: For goods that are not duty-free under normal circumstances, businesses should determine the applicable duties and the projected savings in customs duties under the RCEP. This is required as for certain goods in each country, the existing FTA might actually offer better benefits. Additionally, after determining the extent of savings in customs duties, businesses are advised to weigh the expected duties savings against the costs of fulfilling the RCEP Rules of Origin.

Step 5: Businesses will then have to determine whether the goods were last manufactured in an RCEP country. Also, a list of minimum requirements must be met for the goods to be eligible. This list is available in the full booklet and specifies the minimal processes required for eligibility.

Step 6: The final destination of the goods must be an RCEP country.
Step 7: Analyse other FTAs for customs and duties benefits.
Step 8: Meeting the RCEP Rules of Origin requirements.

There are three categories considered for goods originating in an RCEP country:

- Goods that are wholly obtained or produced in an RCEP country;
- Goods that are produced in an RCEP country exclusively from originating materials from other RCEP country or countries;
- Goods that are produced in an RCEP country using non-originating materials from one or more non-RCEP countries.

There are three Product-Specific Rules (PSRs) applied for determining whether a specific good is deemed "originating":

- *Regional Value Content (RVC)*
For goods with RVC requirement in the PSRs, the originating content must be at least 40% or more in order to qualify for RCEP's preferential duties.
- *Change in Tariff Classification (CTC) Rule*
To prove that the CTC rule is met, businesses will need to determine the HS code of (i) its finished goods, and (ii) the HS codes of all its raw materials/components.
- *Specific-Processes Rule*
This applies to finished goods that have undergone a specific process or processes, for example, chemical processes under the Chemical Rule.

Step 9: Businesses must determine if their goods can meet RCEP's other key rules of origin. The most critical are:

- *Cumulation:* Goods from member states used in the production of a new product in another member state, will be considered as originating from that member state. For example, milk from Australia and sugar from Malaysia are used to make ice cream in Singapore; these two ingredients are then considered as originating in Singapore.
- *Direct Shipment:* RCEP's direct consignment rule allows originating goods to be transported through signatory countries or non-RCEP signatory countries, providing they remain under customs supervision and not undergo any processing.
- *Back-to-back Shipments:* RCEP allows for the issuance of back-to-back Proof of Origin when the goods are shipped via an intermediate RCEP country. The back-to-back Proof of Origin can be issued by an authority of an intermediate country or prepared by an approved exporter or exporter of an intermediate country.
- *Third-party Invoicing:* RCEP allows third-party invoicing of the transaction as long as the goods meet the origin criteria.

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There are several material benefits for Singapore businesses, including reduced or eliminated duties, under one set of rules; **streamlined customs procedures, and increased flexibility for manufacturers to source raw and semi-raw materials.**

The third party that receives the invoice may or may not be an RCEP country.

Step 10: Determining whether shifting to RCEP's rules of origin is commercially viable. If the goods are unable to meet the RCEP's rules of origin, businesses can consider whether it is commercially viable to modify their supply chain to meet the rules. Businesses will need to consider whether the projected savings on customs duties outweigh the costs of doing so.

Step 11: To claim the preferential customs duties, the next step is to proactively present a Proof of Origin to the customs authorities in the importing RCEP country to prove the origin status. There are three steps to obtain a Proof of Origin under the RCEP:

- Apply for a preferential Certificate of Origin with the relevant issuing authorities in the country of export;
- Prepare a Declaration of Origin (that is, self-certification) as an approved exporter under the RCEP;
- Prepare a Declaration of Origin (that is, self-declaration) as an exporter/producer of the goods in question.

2) Reducing logistic lead times and related costs

The RCEP achieves the above by offering Singapore businesses the following benefits:

- Consistent and transparent customs procedures to facilitate trade flows among RCEP countries;
- Commitments across the different stages of cross-border shipments, for example, the release of perishable goods in fewer than six hours to the extent possible, application of information technology for customs clearance procedures, adoption of risk management checks, as well as post customs clearance audits;
- Committing to specific timelines to implement these commitments. These timelines could be shorter than those in the ASEAN Trade in Goods Agreement (ATIGA) and other ASEAN FTAs.

3) Increased operational certainty

Businesses will benefit from greater certainty under the RCEP through the following:

- Advance ruling mechanism: the RCEP has included specific timelines for the issuance of advance rulings;
- At least one enquiry point by each Party: All RCEP countries would designate at least one enquiry point for greater predictability of customs procedures and preferential duties;
- Review and Appeal: the RCEP has provisions for review and appeal.

4) Advantages for specific industries

The booklet also includes issues to note for the following:

- Processed food sector;
- Mineral fuel, petrochemical, chemical and plastics sectors. ISCA

For more information on the Trade in Goods and Rules of Origin, visit https://go.gov.sg/rcep-booklet, or scan the QR code below:

Parts 2 and 3 of this article (respectively, *Understanding the RCEP Services, Investment, and E-Commerce Chapters: Benefits for Businesses*, and *Understanding the RCEP Intellectual Property Chapter: Benefits for Businesses*) will be published in the December 2021 and January 2022 issues of this *IS Chartered Accountant Journal*.

TECHNICAL HIGHLIGHTS

AUDITING AND ASSURANCE

ISCA ISSUES QUALITY MANAGEMENT STANDARDS AT THE FIRM AND ENGAGEMENT LEVELS, INCLUDING ENGAGEMENT QUALITY REVIEWS

ISCA has issued three interrelated standards that address quality management, namely:

- Singapore Standard on Quality Management (SSQM) 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements* (previously SSQC 1);
- SSQM 2, *Engagement Quality Reviews*;
- Singapore Standard on Auditing (SSA) 220 (Revised), *Quality Management for an Audit of Financial Statements*.

The standards include a new proactive risk-based approach to effective quality management systems within firms that establish the foundation for consistent engagement quality, and are effective from 15 December 2022.

For more information, please visit https://isca.org.sg/content-item?id=0b78b1ae-1abf-4a8e-88d8-e3d08856569f

FIRST-TIME IMPLEMENTATION GUIDE FOR ISQM 1 UPDATED AND REISSUED BY IAASB

The following revisions were made to provide further context and clarification when evaluating the system of quality management:

- The section "How the Evaluation is Undertaken, Including What Information is Considered" (pages 89–92) was revised.
- Limited conforming changes were made to the section "Evaluate the Remedial Actions, and if Necessary, Take Further Action" (page 79).

For more information, please visit https://www.iaasb.org/news-events/2021-09/first-time-implementation-guide-isqm-1-updated-and-reissued

ETHICS

ISCA ISSUES EP 100 EXPOSURE DRAFT TO STRENGTHEN NON-ASSURANCES SERVICES AND FEE-RELATED PROVISIONS OF THE CODE

ISCA has issued EP 100 Exposure Draft to adopt IESBA's final pronouncements on non-assurance services (NAS) and fees, and revised SG provisions, SG410.27A and SG410.27B, applicable to audit clients that are listed entities. The revised SG provisions will incorporate several key recommendations arising from ISCA's survey of audit committee members on matters which may impact auditor independence when offering NAS.

Please send your comments to professionalstandards@isca.org.sg by **2 December 2021**.

For more information, please visit https://isca.org.sg/docs/default-source/ep-100/cps-and-cls/ep-100-exposure-draft-(october-2021)_nas-fees.pdf?sfvrsn=d3b37622_2

ISCA ISSUES EP 100 EXPOSURE DRAFT TO ADOPT IESBA'S REVISIONS TO THE CODE ADDRESSING THE OBJECTIVITY OF AN ENGAGEMENT QUALITY REVIEWER AND OTHER APPROPRIATE REVIEWERS

The proposed revisions to EP 100 provide guidance that supports ISQM 2, *Engagement Quality Reviews* in addressing the eligibility of an individual to serve in an engagement quality reviewer role.

Please send your comments to professionalstandards@isca.org.sg by **17 November 2021**.

For more information, please visit https://isca.org.sg/docs/default-source/ep-100/cps-and-cls/ep-100-exposure-draft-(october-2021)_eqr-objectivity.pdf?sfvrsn=7b3022a4_2

FINANCIAL REPORTING

ISCA ISSUES FRB 9 ACCOUNTING IMPLICATIONS OF THE INTEREST RATE BENCHMARK REFORM IN SINGAPORE

The global shift away from interbank offered rates and move towards the adoption of alternative, nearly risk-free benchmark rates is commonly known as Interest Rate Benchmark Reform (IBOR Reform). In Singapore, Singapore Overnight Rate Average (SORA) will replace Swap Offer Rate (SOR) and Singapore Interbank Offered Rate (SIBOR) as the alternative interest rate benchmark by 2024. This will affect all existing Singapore dollar-denominated financial products referencing SOR or SIBOR in their contracts.

FRB 9 addresses the accounting implications arising from the IBOR Reform in Singapore and contains:

- An overview of the IBOR Reform, including changes in interest rate benchmark rates used in Singapore;
- A summary of the accounting reliefs provided under SFRS(I) 9 *Financial Instruments*, SFRS(I) 1-39 *Financial Instruments: Recognition and Measurement* and SFRS(I) 7 *Financial Instruments: Disclosures*, in relation to the IBOR Reform;
- Accounting considerations on specific matters to assist entities in their understanding of the accounting for financial instruments and hedge accounting which are affected by the replacement of interest rate benchmarks within these contracts.

For more information, please visit https://isca.org.sg/content-item?id=9f128aef-b412-4161-9b4d-78e347770cd7

ISCA COMMENTS ON IASB'S RFI ON THIRD AGENDA CONSULTATION

ISCA has provided feedback on the Board's workplan from 2022 to 2026 on the prioritisation of the projects, with due considerations given to Singapore and Asia markets. With an increased focus on climate change and sustainability in Singapore and worldwide, we recommend "Climate-related Risks" and "Pollutant Pricing Mechanisms" to be classified as high priority projects and they should be addressed together, considering that these two topics are intricately linked to each other.

In addition, we note the growing proportion of intangible assets that do not meet the existing recognition criteria under IFRS standards for companies in a digital economy. Hence, we propose the Board to prioritise the "Intangible Assets" project by adopting a phased approach, where the first step would be to require improved disclosures around intangibles.

For more information, please visit https://isca.org.sg/docs/default-source/fr-eds-and-comment-letters/comment-letter_third-agenda-consultation-(for-submission).pdf

ISCA COMMENTS ON IASB'S EXPOSURE DRAFT ON INITIAL APPLICATION OF IFRS 17 AND IFRS 9 – COMPARATIVE INFORMATION

ISCA supports the Board's initiative in developing a narrow-scope amendment to the transition requirements of IFRS 17 for entities that first apply IFRS 17 and IFRS 9 at the same time.

However, we believe that the prohibition against applying the classification overlay approach to financial assets unconnected with IFRS 17 contracts reduces the benefits of the proposal and should be deleted. We also sought clarity over relevant disclosure and impairment requirements that should be applied when the classification overlay has been used.

For more information, please visit https://isca.org.sg/docs/default-source/fr-eds-and-comment-letters/comment-letter_iasb-ed-initial-app-ifrs17-ifrs9-(submission).pdf

ISCA COMMENTS ON IASB'S DP ON BUSINESS COMBINATIONS UNDER COMMON CONTROL

ISCA supports the Board's initiative to address the diversity in practice for common control business combinations. However, we are concerned that the proposed criteria as set out in the DP for the use of acquisition or book value method might result in structuring opportunities for companies to achieve certain desired accounting outcomes.

In addition, we disagree with the Board's views to include the transferred company from the combination date, without restating pre-combination information. This disregards the substance of the transaction (that is, the "new" entity is, in substance, a continuation of the transferred company) and results in loss of pre-combination information relating to the transferred company.

Lastly, for the book value method, the receiving company should measure the acquired assets and liabilities as reported by the controlling party and not that reported by the transferred company. This approach is recommended in our Recommended Accounting Practice 12 (RAP 12) *Merger Accounting for Common Control Combinations for Financial Statements* and deviates from the Board's proposal in the DP.

For more information, please visit https://isca.org.sg/docs/default-source/fr-eds-and-comment-letters/isca-comment-letter_business-combinations-under-common-control.pdf

ISCA INVITES COMMENTS ON IASB'S PIR IFRS 9 FINANCIAL INSTRUMENTS CLASSIFICATION AND MEASUREMENT

ISCA seeks comments on IASB's Post-implementation Review of IFRS 9 *Financial Instruments* Classification and Measurement.

Please send comments to professionalstandards@isca.org.sg by **3 December 2021**.

For more information, please visit https://isca.org.sg/content-item?id=4d7950c6-9089-4827-979f-ab5963935b65

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BY FELIX WONG AND ANGELINA TAN

TRANSFER PRICING FOR SINGAPORE-BASED HEADQUARTERS

TP Methods, Documentation And Disputes

TRANSFER PRICING (TP) HAS BEEN A MAINSTAY IN THE INTERNATIONAL TAX SCENE ever since it was catapulted into the limelight by the Organisation for Economic Co-operation and Development (OECD)'s Base Erosion and Profit Shifting (BEPS) project back in 2013. As the OECD presses on with its two-pillar solution under the new BEPS 2.0 initiative, TP is set to dominate the international tax agenda for years to come.

Earlier this year, the Inland Revenue Authority of Singapore (IRAS) published a specific guidance for multinational enterprise (MNE) groups with centralised activities in Singapore, and subsequently updated its TP guidelines. At a webinar organised by the Singapore Chartered Tax Professionals, Adriana Calderon, Director, Transfer Pricing Solutions Asia, zoomed in on the key TP issues that Singapore-based headquarters (HQs) should take note of.

ROLE OF HQ

According to IRAS' e-Tax guide, HQ is defined as a "centralised office location(s) where an MNE group's management and key staff operate and oversee business activities". Functions of an HQ may include centralised key decision-making, management and coordination, building customer insights, developing product and service strategies for local markets, as well as achieving economies of scale and cost efficiencies.

While the term "HQ" is commonly used for tax, corporate planning, corporate communications and TP purposes, IRAS has expressed that the said label should not dictate the TP analysis. Instead, emphasis should be placed on assessing the actual functions, assets, and risk profiles of the HQ to determine the appropriate transfer price for centralised activities. In practice, the function profile of an HQ may range anywhere from a service provider to an entrepreneur, depending on the nature of the activities it conducts, taking into account assets used and risks assumed.

On one end of the spectrum is a service provider providing routine centralised services that are generally administrative and executory in nature. On the other end is an entrepreneur that performs significant functions to organise and operate the business, makes key business decisions, and controls and assumes significant entrepreneurial risk and has the financial capacity to assume risk.

> In practice, the function profile of an HQ may range anywhere from a service provider to an entrepreneur, depending on the nature of the activities it conducts, taking into account assets used and risks assumed.

Adriana Calderon, Director, Transfer Pricing Solutions Asia, zoomed in on the key TP issues that Singapore-based headquarters should take note of

FUNCTIONAL ANALYSIS

An HQ's contribution to value is defined by the nature of the activities it conducts, the assets used and the risks assumed, for which the HQ should be appropriately compensated for the benefits it confers to the MNE group.

Functions performed by HQs

HQs generally conduct a wide spectrum of activities that are centralised. The HQ may perform the activities on its own account and acts as a principal, or on behalf of another entity and acts as a service provider. Broadly, these can be categorised into four functional profiles:

i) Principal in distribution, manufacturing or research and development (R&D) arrangements;
ii) Activities relating to core business processes;
iii) Activities relating to administrative, technical, financial, commercial, management, coordination, and control functions;
iv) Shareholder activities.

It should be noted that shareholder activities (such as the preparation of the consolidated financial statements of the group) do not benefit the group entities. As such, HQs should not charge a service fee in respect of these activities.

Assets utilised by HQs

Depending on the functions performed by and the role of the HQs, different assets may be employed to run their operations.

For example, an HQ acting as a principal may own the relevant intellectual property (or license patents and other technologies from the group's intellectual property owners) to execute its responsibilities, while an HQ acting as a principal in a manufacturing arrangement may own raw materials, packaging materials and finished goods.

Risks assumed by HQs

There are many different risks that can be encountered by HQs, such as market risks, commercial risks and supply chain risks.

Where the HQ acts as a principal, it would typically assume all or some of the key business risks. The HQ must have the financial capacity to assume the risks, as well as the capability to make key business decisions and conduct activities relating to core business processes. In contrast, an HQ providing only routine centralised services would generally be limited to the operational risks of providing the services.

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The functions performed, assets utilised and risks assumed by the HQ define its contributions to the value chain of the MNE group; these in turn determine the arm's length remuneration that it should earn.

APPROPRIATE TP METHOD

The functions performed, assets utilised and risks assumed by the HQ define its contributions to the value chain of the MNE group; these in turn determine the arm's length remuneration that it should earn.

To price the actual related party transaction, one of the five TP methods as set out in the TP Guidelines, any other more appropriate method, or even a combination of methods may be used. Common industry practices and the availability of reliable independent comparables should be considered when selecting the most appropriate method to price HQ activities.

Generally, an HQ assuming economically significant risks and is characterised as an entrepreneur should receive the residual profit in accordance with the selected TP method, and be entitled to the upside benefits and incur the downside costs. On the other hand, an HQ that is characterised as a service provider would generally receive a fixed return based on the level of value add of its service.

TP DOCUMENTATION & EXEMPTIONS

Maintaining a set of robust and contemporaneous TP documentation is key to minimise TP exposure. HQs are subject to the same thresholds for preparation of mandatory TP documentation in Singapore as outlined in the TP Guidelines, that is, if the gross revenue from their trade or business for the basis period exceeds S$10 million, or if they were required to prepare TP documentation for a previous basis period.

Exemption from TP documentation may apply if the HQ's gross revenue is below S$10 million for the current basis period and the immediate two preceding basis periods (even if related party thresholds are exceeded), or if it is one of the transactions specifically exempted under the TP Documentation Rules.

Type and content of TP documentation

A Singapore-based HQ is required to prepare TP documentation at the group level and entity level, both of which are largely similar to the OECD's master file and local file requirements respectively.

Where the Singapore-based HQ is the ultimate parent entity of the MNE group and has group revenue exceeding S$1.125 billion, it is also required to file a country-by-country report.

FREQUENCY OF REVIEW

It is a best practice for HQs to review and refresh their TP documentation annually to ensure that information contained in the TP documentation remain accurate, and that the transfer price supported by the TP documentation is still at arm's length.

In Singapore, to reduce compliance burden, taxpayers are allowed to use TP documentation prepared previously to support the transfer price in the basis period concerned if that past TP documentation is a qualifying past TP documentation

In the basis period where such qualifying past TP documentation is used, taxpayers need to prepare a simplified review and declaration that qualifying past TP documentation has been prepared together with a copy of the qualifying past TP documentation.

TP AUDIT-READY

In the event of audit or review by tax authorities, common documents and information requested during audit or reviews typically include contracts, contemporaneous TP documentation, invoices, organisational charts, job descriptions, basis for the price in the transactions, and support on calculation of the price. As the open years for which a

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TP audit are generally between five and seven years, HQs should ensure that they retain these documents and information to stay audit-ready.

COMMON TP DISPUTES

TP adjustments

An HQ may make year-end adjustments as its actual results differ from the arm's length prices determined in its TP study before or during its year-end closing. In Singapore, IRAS would generally accept the year-end (downward) adjustments if the TP analyses and contemporaneous TP documentation are in place, the year-end adjustments are made symmetrically in the accounts of the affected related parties, and the adjustments are made before the HQ files its tax returns.

An HQ may also make self-initiated retrospective adjustments due to subsequent changes in circumstances (for example, to comply with a group global TP policy which has not been taken into account previously or to reflect revisions in TP analyses). It is understood that IRAS will not allow any retrospective downward adjustments unless such adjustments are due to an error or mistake under Section 93A(1A) of the Income Tax Act and supported by contemporaneous TP documentation.

Issues arising from COVID-19

Many businesses suffered losses due to the COVID-19 pandemic. From a TP perspective, the question then is who in the MNE group should bear the negative impact arising from COVID-19. While the full impact is yet to be seen, it would not be unlikely to see some tax authorities trying to dispute MNE groups' loss allocation, and accordingly, subject them to TP adjustments and double taxation.

One possible flashpoint is the business volatility caused by COVID-19 which results in wide fluctuations of profits and losses. While IRAS has allowed taxpayers to apply term testing for YAs 2021 and 2022 (such that related party transactions can be tested over a multiple-year period to reduce volatile TP results due to COVID-19), the same may not be allowed in other jurisdictions. This may then lead to potential disputes in the other jurisdictions.

Against the challenging international backdrop, the TP environment is no doubt tougher than ever and will only get more intense going forward. It is therefore crucial for MNE groups and Singapore HQs to actively manage their growing TP risks by reviewing their existing TP processes and practices, as well as evaluating the adequacy of their TP documentation. ISCA

Felix Wong is Head of Tax, and Angelina Tan is Technical Specialist, Singapore Chartered Tax Professionals.

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