

GOVTECH  
SINGAPORE

▶ MOVING TOWARDS  
**THE DIGITAL  
GOVERNMENT  
OF TOMORROW**



ANNUAL REPORT 2022/2023



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# CHAIRMAN'S MESSAGE

GovTech is into the final year of the first Digital Government Blueprint. Much progress has been made towards the goals set out five years ago to digitalise government services and move government IT infrastructure to the cloud.

In 2022, we saw the nature of GovTech's work shift in response to the new demands of technological advancements and evolving citizen and business needs. We continued to deliver people-centric services for citizens, businesses and public officers that are secure, reliable and easy to use. We modernised our Government IT infrastructure, raised the bar for public officers and our vendors, and kept up with emerging technologies. We also sought to achieve our goals in a sustainable way.



## ► Delivering people-centric products and services for citizens, businesses and public officers

Nearly all transactions between citizens and the Government can now be completed digitally, but going digital is only the beginning. We are ensuring that our digital services are secure, reliable, easy to use, and meet the needs of our people. To help citizens guard against evolving scams targeting Singpass, we introduced additional verification checks in some situations to ensure that Singpass is not being misused by scammers. As borders reopened and international travel resumed in 2022, our engineers worked with the Immigration and Checkpoints Authority (ICA) to digitalise ICA's services such as the submission of pre-arrival documents through the myICA mobile app, simplifying procedures as travel resumed post-Covid. New services for businesses such as the Progressive Wage Mark Application were introduced under GoBusiness to streamline processes effectively.

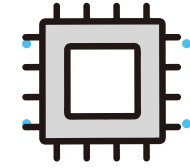
We also improved the tools and services for public officers to do their work efficiently and securely. In 2022, we successfully drove the adoption of SG-Teams to over 120,000 public officers, improving overall collaboration and productivity across the Whole of Government (WOG). This was done with

the help of 1,500 agency change champions from 84 agencies. We also improved the speed and convenience of functions within the Workpal Mobile app, and introduced QuickBuy@SGov to reduce procurement time.

We are co-creating more products and services with citizens through outreach efforts like the Tech Kaki community and the Smart Nation Builder roadshows, as well as our citizen engagement tool CrowdTaskSG. These initiatives have helped our engineers gather valuable feedback on initiatives such as Project Pensieve, an artificial intelligence (AI)-enabled screening test that detects the early onset of dementia in seniors.

## ► Modernising the Government's IT infrastructure

We announced our "cloud-first" strategy in 2018 and have since made significant progress. As of 2022, over 67 per cent of eligible systems have been migrated to the cloud, putting us close to the goal of 70 per cent by the end of 2023. The move to the cloud has lowered operating costs and improved our ability to scale applications and deploy software changes quickly. We also increased the automation of our processes to maintain service delivery, and improved the resiliency of our systems. At a WOG level, the Government Cybersecurity Ops Centre (GCSOC) was commissioned to enhance the Government's cybersecurity capabilities.



**Joseph Leong**

Chairman  
Government Technology Agency

► **Raising the public service and vendor ecosystem's digital competencies**

To realise our goals for the next bound of Smart Nation, GovTech must also raise the bar for the rest of the public service and vendors from the private sector. The Digital Academy trained over 4,400 public officers from 81 agencies in 2022, up from about 2,000 the year before. We have increased the number of forward deployed teams to other agencies, as we move towards providing more direct support to agencies and increase the adoption of centralised platforms.

More projects will also be co-developed with the private sector. The value of such projects is expected to increase to 45 per cent of total spending in FY23, up from 27 per cent and 20 per cent in FY22 and FY21 respectively.

► **Staying abreast of emerging technologies and workplace practices**

***Harnessing the use of AI***

We have moved fast in exploring the use of emerging technologies such as generative AI for the public good and to improve our digital services. Our early efforts include Pair — a chatbot based on ChatGPT that assists public officers with writing, research, and coding — and JumpStart, an AI-enabled job search engine on the MyCareersFuture job portal that can understand the intent of users' queries and break down the search into sub-categories like company name and job role.

***Going green***

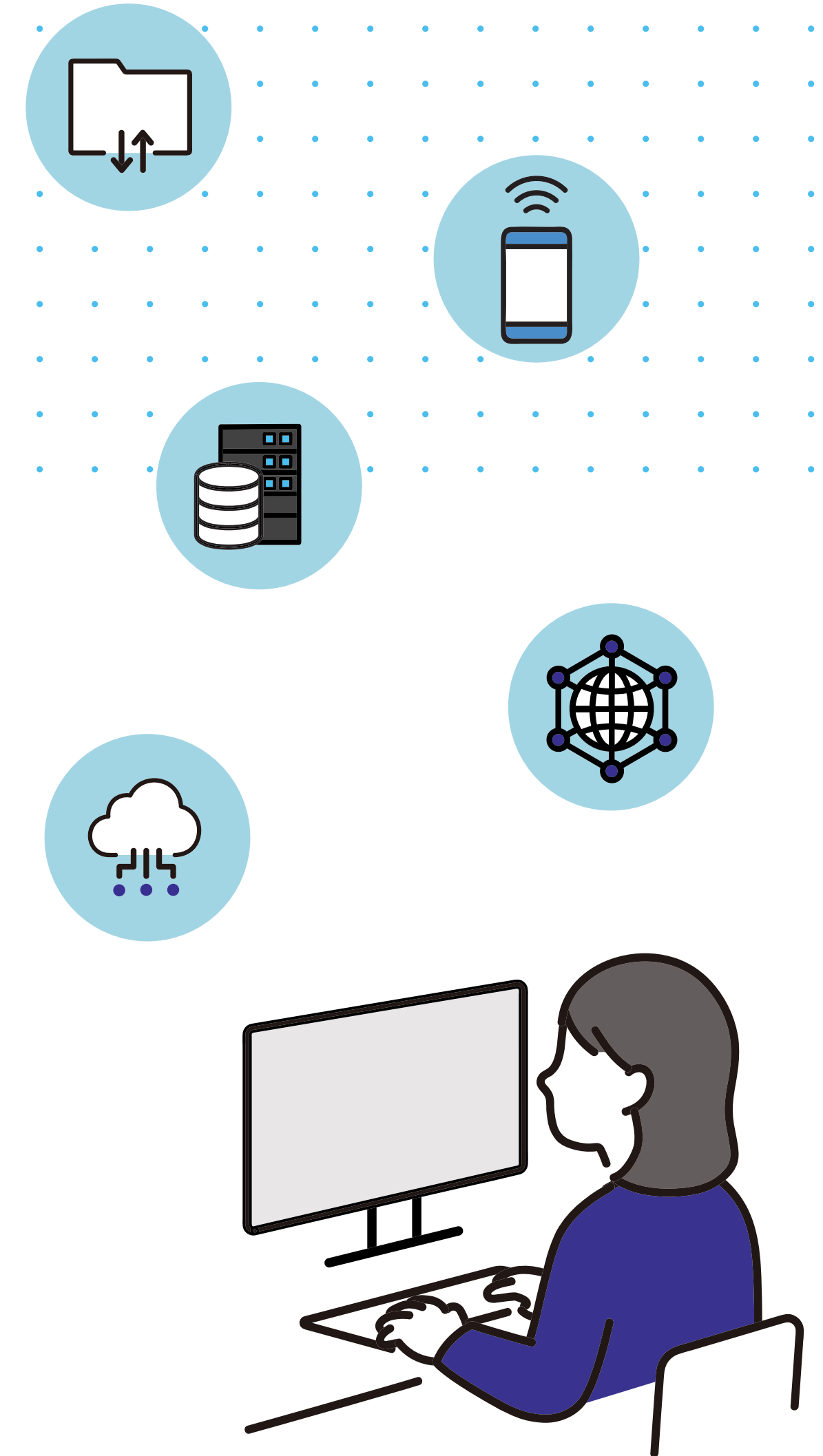
Progress towards our digital government goals will also go hand in hand with sustainable ICT practices. GovTech launched our sustainability framework and strategy in May, and we have introduced sustainability criteria for some ICT tenders ahead of the 2024 timeline required by the Ministry of Sustainability and the Environment (MSE) under the SG Green Plan. Future plans include greening our supply chain and promoting the development of ICT products with sustainable impact.

► **Tomorrow's Digital Government**

More challenges and opportunities lie ahead. The AI revolution is already changing the way we work, and the Government will have to move fast to deepen our capabilities in this space. We must also be prepared to deal with the cyber threats that follow in the wake of new technologies, to build secure platforms and maintain the trust of citizens and businesses. These are challenges that I am confident GovTech can meet, and I look forward to working with you in the years to come.



**Joseph Leong**  
Chairman  
Government Technology Agency



# STATISTICS

## Singapore's performance in the Digital Government Rankings

### IMD Smart Cities Index

#### Background and Objective

The IMD Smart Cities Index (SCI) is published by Switzerland's Institute for Management Development (IMD). The 2023 edition combined hard data and survey responses to rank 141 cities by how technology is used to address the challenges each city faces to achieve a higher quality of life for residents.

#### Singapore's ranking

**7TH**

in the world

**LEADING**

smart city in Asia

Zurich, Oslo, and Canberra were the top three cities respectively. Singapore also ranked seventh in 2021, when the SCI was last published.

### UN e-Government Survey 2022

#### Background and Objective

Published biennially, the United Nations E-Government Survey assesses the e-government development status of all 193 United Nations member states. The assessment measures the e-government performance of countries relative to each other, and recognises that each country should decide upon the level and extent of its e-government initiatives in keeping with its own national development priorities.

#### Singapore's ranking

**12TH**

in the world

**SECOND**

in Asia behind the Republic of Korea (3rd overall)

The top two countries surveyed were Denmark and Finland.



Annual Digital Government Perception Survey 2022

Background and Objectives

The Surveys on Satisfaction with Government Digital Services (Citizens and Businesses) is conducted annually by the Smart Nation and Digital Government Office (SNDGO) and GovTech to assess citizens' and businesses' satisfaction with key government digital services and to identify areas for further improvement. The surveys were conducted from November 2022 to January 2023 for the reporting period of FY2022 (1 April 2022 to 31 March 2023).

Citizens

Research Methodology

1,503 Respondents

comprising representatives of the total demographic population above the age of 19 were surveyed via face-to-face interviews.



Survey results

84%

were **very/extremely satisfied** (rating of 5 and above on a scale of 6) with **government digital services** for citizens.

93%

rated G2C services as close to the **best digital service** they have used.

99%

agreed that digital services for citizens **have improved in the past 12 months**, and **would encourage their friends and families** to use them.

>75%

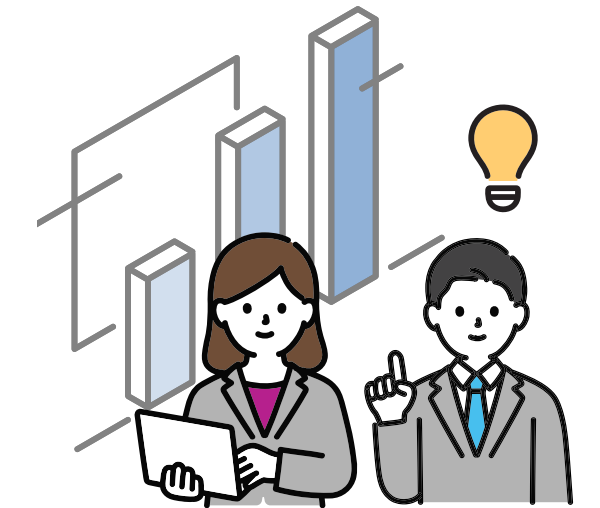
were **very/extremely satisfied with 22 of the 25 digital services surveyed**, but two saw a significant decline in satisfaction — borrowing and checking out the National Library Board (NLB)'s digital materials, and making medical appointments via HealthHub.

Businesses

Research Methodology

1,250 Respondents

were surveyed via telephone interviews.



Survey results

79%

were **very/extremely satisfied** (rating of 5 and above on a scale of 6) with **government digital services** for businesses.

90%

rated G2B services as close to the **best digital service** they have used.

96%

agreed that **digital services for businesses have improved and would encourage their friends and families** to use them.



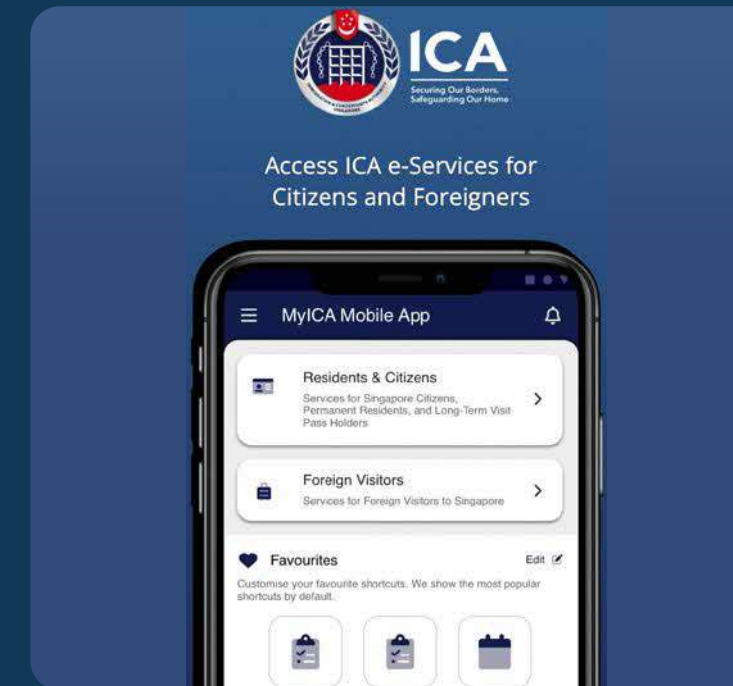
Businesses rated our digital services' **reliability, relevance, and security highly**, with the seamlessness of our services continuing to receive the lowest ratings.

# HIGHLIGHTS FY2022

April 2022

## TRANSACTION WITH THE IMMIGRATION AND CHECKPOINTS AUTHORITY (ICA) ANYTIME

The MyICA Mobile App is a one-stop platform and a trusted gateway to ICA services for Singapore residents and foreign visitors. By allowing travellers to scan their passports, store user profiles, and draft their SG Arrival Card submission offline, MyICA Mobile has eased the submission of pre-arrival documents for millions of travellers, enabling smoother, automated checkpoint clearance. The app gives travellers a positive touchpoint with Singapore and supports ICA's ongoing business transformation.



**Gary Chua**  
Head (Digital Services), Home Team Science & Technology Agency (HTX)

A GovTechie seconded to the HTX, Gary leads the team responsible for developing and overseeing immigration e-services. As borders began to reopen in 2022, Gary's team faced pressing needs to update and refresh ICA's suite of e-services — in particular the passport application and SG Arrival Card services. Their work culminated in the launch of the MyICA Mobile App, the trusted gateway to all ICA e-Services. The app became the second-most downloaded Government app in just six months.

Besides spending time with his children, Gary also enjoys experimenting with coffee beans and various brewing methods.

**"GovTech has given me the opportunity to work with a wide range of stakeholders across various projects. These experiences have furnished me with a diverse set of skills and knowledge that I am happy to share with my colleagues."**

May 2022

## IMPLEMENTATION OF 100% E-BIRTH REGISTRATION VIA LIFESG

Since 29 May 2022, all parents are required to register the birth of their newborn via LifeSG. This process provides convenience to parents by saving them a trip to the hospital or ICA to collect the physical birth certificate, as the end-to-end process can be completed online.



**Beaumont Ng**  
Senior Product Manager, LifeSG

Beaumont is from the team that launched LifeSG's birth registration feature in May 2022. Describing the endeavour as one of great magnitude, Beaumont's team had to consolidate a range of different services across multiple public and private domains that are associated with birth registration, resulting in a painless process that takes no more than 15 minutes on the LifeSG app.

Beaumont is an avid movie-goer who tries not to miss any of the latest blockbusters. His time in the sun and out of the cinema, on the other hand, is reserved for fun times with the kids.

**"I like that the outcomes from the work I do benefits citizens. GovTech's product focus is on the value we bring to the public, unlike commercial products which tend to be profit-driven."**

June 2022

GOVTECH PRODUCTS WIN BIG AT IDC SMART CITY ASIA/PACIFIC AWARDS 2022

A total of 22 awards were given out, with GovTech products comprising six of the seven winners from Singapore. Winners included the Asynchronous Data Exchange (ADEX), Classroom of the Future (with the Ministry of Education [MOE]), eCanvas, and the Smart Gardens by the Bay system.

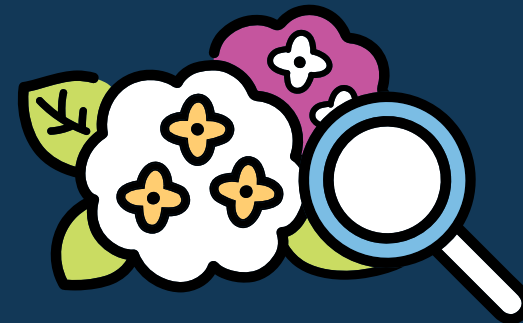


ENHANCING TRANSLATION OF GOVERNMENT COMMUNICATIONS THROUGH TECH AND CROWDSOURCING

SG Translate Together (SGTT), a Ministry of Communications and Information (MCI) and GovTech initiative, allows the public to generate localised translations and submit their post-edited translations to help further train the underlying Machine Translation (MT) engine. The platform has seen an average of 21,000 translations per month since its launch on 27 June 2022, with at least 1,232 registered citizen translators contributing to the translation effort. This has significantly increased the corpus of data points available to improve the accuracy and quality of translations.

COMPLETION OF SUCCESSFUL SMART GARDENS TRIAL

GovTech's Smart City Technology Division (SCTD) handed over the Smart Gardens project at Gardens by the Bay to a private operator after a successful trial. It will now be scaled to the entire Gardens by the Bay. Smart Gardens is an integrated system of lampposts, sensors, and robots that optimises the deployment of manpower through data analytics and streamlines plant monitoring among other processes.

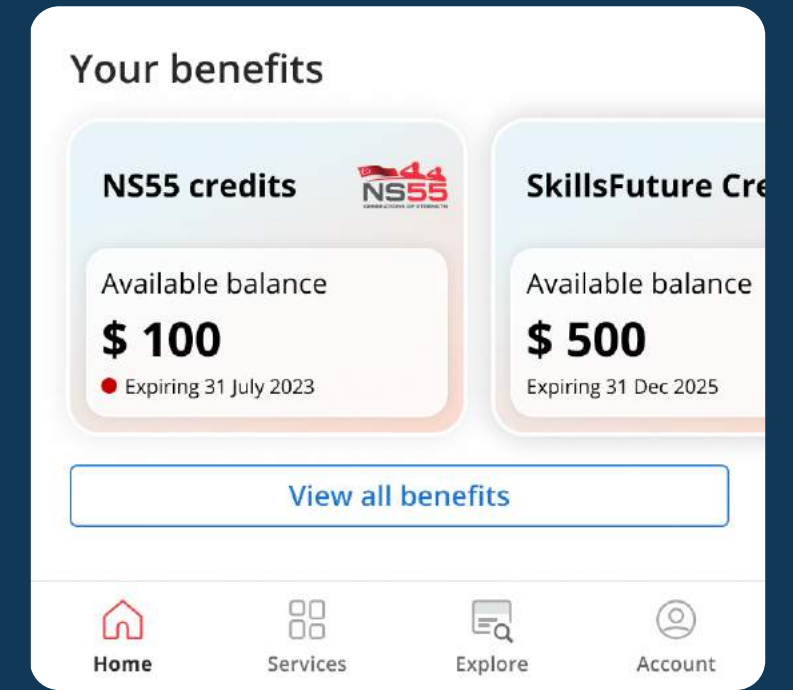


July 2022

CONVENIENT, DIGITAL DISBURSEMENT OF CREDITS TO ELIGIBLE NSMEN

The NS55 Recognition Package credits were disbursed digitally to over one million National Servicemen (NSmen) through GovWallet on the LifeSG app, eliminating the need for physical vouchers and making it more convenient for NSmen to redeem their credits.

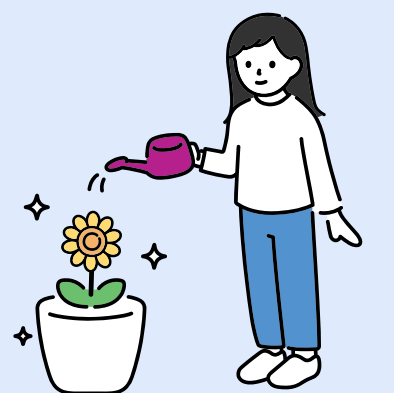
This digital disbursement of credits allowed NSmen to redeem the credits conveniently at any merchant accepting payment by "Scan and Pay" via PayNow UEN and/or NETS QR.



Immanuella Lim Software Engineer, Government Digital Services

Immanuella is part of the team that has been working tirelessly to improve GovWallet since the product was launched in 2021. GovWallet is a digital wallet module that can be integrated into existing government apps such as Singpass or LifeSG to provide a means of fund distribution. In FY22, GovWallet was the channel used to disburse NS55 credits to NSmen via the LifeSG app. Immanuella's work involves collaborating with product teams within GovTech, in other government agencies, and from partner banks to enable the integration between all the different systems that is needed for GovWallet to work.

When she is not grappling with the myriad problems faced by multiple stakeholders with fund distribution, Immanuella can be found going for Pilates sessions and relaxing at home where she has recently started to try composting.





August 2022

AI-ENABLED MYCAREERSFUTURE JOB SEARCH

MyCareersFuture is an online job portal by Workforce Singapore (WSG) with an estimated 53,000 weekly active users. On 18 July 2022, GovTech's Data Science & Artificial Intelligence Division (DSAID)'s JumpStart team launched an upgraded AI-enabled search engine for MyCareersFuture. The new engine uses AI to understand the intention of users' search queries, specifically by breaking their search queries into sub-categories like company name and job role. The upgraded search engine currently powers an estimated 1.1 million search queries weekly.



PROJECT PENSIEVE: CO-CREATING WITH TECH KAKI

In collaboration with the Singapore General Hospital, GovTech's DSAID is developing an AI-enabled screening test called Project Pensieve to detect dementia in seniors. The initiative facilitates the case-finding of persons with dementia in the community, enabling early intervention and helping them age more gracefully.

In 2022, the team encouraged citizen co-creation by engaging GovTech's Tech Kaki and members of the public through roadshows, inviting them to test-drive the app and provide feedback, helping us remain people-centric in our development.

DATA ARCADE TOURNAMENT 2022

The Data Arcade Tournament (DAT) by GovTech's DSAID continues to be the apex WOG data and AI tournament competition for public officers. Over 1,300 participants from 75 agencies participated in 2022, the highest number ever. Microsoft also joined Tableau and Qlik as key industry players in visual analytics.

DAT2022 introduced two new awards: the ImpactiVIZ Award, which focuses on using agency data to uncover actionable insights, and the Data VIZard Award, which focuses on using open data to hone visualisation and data storytelling skills. Sixteen agencies participated in the ImpactiVIZ Award, which encourages officers to build dashboards and solutions that benefit their work by emphasising actionable and impactful entries.



**Nicole Lee**  
Assistant Manager, Data Science and Artificial Intelligence Division

In her role, Nicole oversees two community initiatives for DSAID: the annual DAT and the data upskilling and gamification initiative Datadex. The latter engaged 79,000 public officers from 100 agencies in its inaugural year, helping to propagate a data-driven culture across Singapore's public service.

Nicole firmly believes in GovTech's vision of empowering Singapore through technology, and is motivated by seeing her public service peers become more data-driven in their work and contribute to their agency's data and digitalisation efforts.

She is a fitness enthusiast who has clocked workouts at over 100 boutique gyms and studios in Singapore, and is devoted to her dog and the causes of various animal welfare groups locally and internationally.

CREATING A CONVENIENT ENTRY POINT FOR USERS TO REPORT MUNICIPAL ISSUES VIA LIFESG

To make the reporting of public cleanliness and municipal issues convenient and easy, the "report a neighbourhood issue" function on OneService was made available on the LifeSG app and website as another gateway on top of the OneService app.

Submitting a report can be done in three simple steps anytime, anywhere. Users can also easily keep track of their report status through the LifeSG app inbox. Additional OneService functions will be progressively onboarded onto LifeSG.

COLLABORATION WITH SPF IN INVESTIGATIONS OF SINGPASS-RELATED SCAMS



Since August 2022, GovTech has been working closely with the Anti-Scam Centre (ASC) and other institutions like banks to enhance real-time coordination with the Singapore Police Force (SPF) to investigate Singpass-related scams. The presence of our staff at ASC facilitates the faster sharing of information and enables the SPF to leverage Singpass' fraud analytics capabilities that identify and flag unusual activities in Singpass accounts.

September 2022

IMPLEMENTATION OF DATA LOSS PREVENTION (DLP) TOOL

The Data Loss Prevention (DLP) tool was implemented in more than 140,000 public officers' work devices in 93 government agencies to protect sensitive government data and prevent accidental disclosure of information. DLP compares user actions against a set of central rules which check for potential data security risks, and then sends alerts about potential data loss or blocks the transmission of sensitive data.

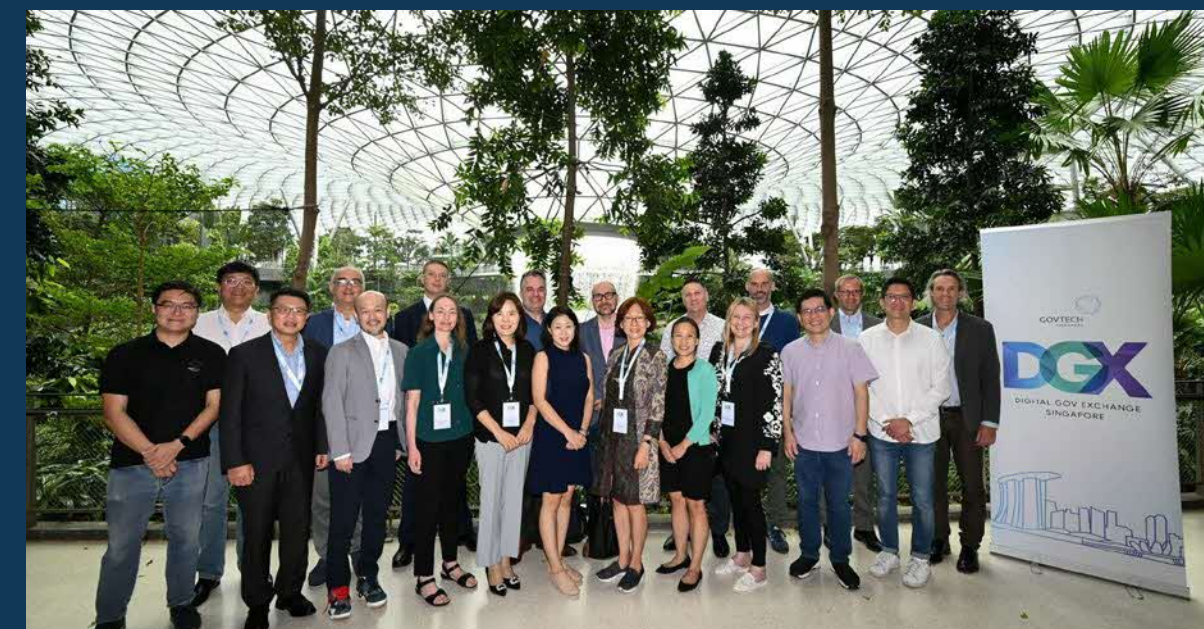


**Simone Seow**  
Infrastructure Engineer, Government Infrastructure Group

Simone is part of the team that implemented the DLP initiative in August 2022. The initiative requires software changes on public officers' laptops to perform additional security checks on activities involving data on the officer's work device, such as sending of emails. One of the team's main goal was to minimise disruption to officers' work. They tested various scenarios with a group of pilot users to fine-tune the data policies before activating the tool. For DLP to work effectively, all documents and files must also be labelled with a data sensitivity classification. The team also had to roll out file classification tools and change management initiatives to help public officers classify their documents.

Simone is grateful for the support and understanding of her team during her pregnancy and maternity leave, when she was able to work from home and attend meetings virtually. "The team even excluded me from WhatsApp group chats with contractors so I wouldn't be stressed with work-related messages during my maternity period," she said. "Some of my more experienced teammates who are also parents provided me with valuable tips on how to balance work and caring for my little one too." Simone enjoys spending time with her family, good food, and travelling.

STRENGTHENING INTERNATIONAL TIES AT THE 2022 DIGITAL GOVERNMENT EXCHANGE AND 56TH ICA CONFERENCE



GovTech hosted over 30 international delegations and conducted seven bilateral talks in conjunction with the 2022 DGX and 56th ICA Conference. Four working group reports were subsequently published on the Singapore Government Developer Portal.

October 2022

DATA CHAMPIONS BOOTCAMP 2022

The Data Champions (DC) boot camp is an organised training course where officers undergo a six-month part-time training to become a Power User, equipped with advanced visual analytics capabilities, data wrangling with Python, and machine learning skills.

In 2022, 980 public officers completed the training, a marked increase of 259 per cent compared to 2021. In total, 98,000 training hours were delivered across the Government in 2022. Since the programme was launched in 2020, 1,500 officers from more than 90 agencies have been upskilled to become Power Users in Data Science & AI.



**FOSTERING A STRONGER CYBERSECURITY COMMUNITY**

Jaga the STACK is GovTech's Cyber Security Group's flagship community engagement programme that seeks to build a community of local security researchers to create solutions for cybersecurity challenges, as well as deliver impactful and meaningful experiences for the cybersecurity community.

From October 2022 to December 2022, over 1,600 cybersecurity enthusiasts took part in three events under Jaga the STACK:

- STACK the Codes Hackathon: the first cybersecurity hackathon organised by the government.
- STACK the Flags Capture-the-Flag competition.
- Jaga the STACK prize ceremony



**Mah Chia Hui, Leon Chua, Yu Pengfei (L-R)**  
Cybersecurity Engineers, Cyber Security Group

Leon, Chia Hui and Pengfei were the driving force behind the Jaga the STACK programme. It was highly rewarding for them to see the programme attract over 1,600 participants — some as young as 16 years old — for the competitions.

Organising the programme gave the trio an opportunity to work with other divisions in GovTech. They were supported by numerous teams such as Procurement, Legal, Talent Acquisition, Marketing, and the Technology Management Office.

To support the coordination and logistical efforts for the competitions, they also had the help of their fellow cybersecurity engineers. For example, during the 48-hour STACK the Flags competition, many engineers were on rotation, spending their nights working and sleeping in the office to ensure the smooth running of the event.

Chia Hui, Leon, and Pengfei have many common interests, and when they are not engaging the cybersecurity community, they split their time between exercising, watching anime, and playing video games.

**PROTECTING SINGPASS USERS WITH ADDITIONAL SECURITY VERIFICATION**

GovTech enhanced protections for Singpass users against evolving scams, such as requesting users to perform additional Singpass Face Verification checks to verify their identity for higher risk transactions. This is an added safeguard against unauthorised access to Singpass accounts or services that require Singpass login.

**ELECTRONIC ONSCREEN MARKING FOR NATIONAL EXAMS**

The Integrated Digitisation of Scripts and Electronic Marking System (iDSEM) automates the scanning and electronic marking of answer booklets for five national examinations in Singapore. In 2022, onscreen marking was completed for all PSLE subject papers and other national exams involving 8,300 markers. Onscreen marking enhances script security and operational efficiency, while Quality Assurance Scripts reduce the need for physical markers by over 50 per cent, leading to significant savings of 40,000 man-days per year. For the 2022 PSLE marking exercise, there were cost savings of \$9.4 million, with a reduction in physical markers and removal of recording personnel.



**GREATER CUSTOMISATION FOR PASSION CARD MEMBERS**

The People's Association (PA) and GovTech enabled 3.3 million PAssion card members to be part of a new Yuu Loyalty programme/PAssion mobile app. Members could transit from the TapForMore physical cards to the Yuu Loyalty programme seamlessly, while non-members could sign up digitally via the enhanced PAssion mobile app for a more customised experience. Users can also earn points from more than 1,000 places islandwide and have the flexibility of choosing from a wide range of offers and rewards.



**AI-POWERED PLATFORM FOR PERSONALISED PUBLIC SECTOR CAREER PATHWAYS**

One Talent Gateway (OTG) is a Software-as-a-Service (SaaS) platform powered by AI that offers public sector employees tailored career paths and learning activities. Data from HR systems and learning management systems provide critical AI modelling data for personalised development opportunities. This platform, implemented by the Public Service Division (PSD) and GovTech, will scale up to benefit 130,000 public officers over the next five years. OTG also won the HR Tech Fest Award 2023 for Best Use of Technology.



November 2022

**ACCESSIBLE APPLICATION OF LASTING POWER OF ATTORNEY FOR OUR SILVER GENERATION**

Office of the Public Guardian Online (OPGO) is a system implemented by the Ministry of Social and Family Development (MSF) and GovTech that lets Singaporeans apply for their Lasting Power of Attorney (LPA) early to better protect those who have lost mental capacity (e.g. through dementia). It uses technology such as Sign with Singpass, low code platforms, and AI for risk profiling. Over 8,400 LPAs have been filed since the platform's launch in November 2022, bringing us closer to the goal of 240,000 LPAs by 2025 to alleviate ageing population issues.

**STACK DEVELOPER CONFERENCE 2022**



STACK is Singapore's largest government-led developers conference, and is organised by GovTech biennially. It serves as a platform to connect developers, programmers, and technologists from the public and private sectors. The 2022 edition was held at the Suntec Convention and Exhibition Centre, and focused on technologies such as cloud, Software-as-a-Service, and AI.

**DIGITAL SERVICES AWARDS 2022**

Over 650 physical and virtual attendees from 73 government agencies joined the 2nd edition of the Digital Services Awards (DSA) at The Star Gallery, graced by Guest-of-Honour Dr Janil Puthuchery, Senior Minister of State for Communications and Information, and Minister-in-charge of GovTech.

Two new awards were introduced — Best Usability (Citizens' Choice) and Best Usability — Accessibility award. Eleven agencies took home awards across various categories, based on technical scores on the Whole-of-Government Application Analytics (WOGAA) platform, and assessment scores from judges and members of the public.



**NEA BLOOBOX DISTRIBUTION**

SupplyAlly, the central distribution system for the Government, played a vital role in the successful Bloobox initiative, contributing to an impressive 93 per cent collection rate.

By efficiently coordinating the distribution of the recycling container boxes through vending machines at more than 140 locations islandwide, SupplyAlly ensured that each household received their fair share, preventing excess collection.

The system's streamlined approach also facilitated easy data collection, allowing NEA to monitor distribution statistics effectively.



December 2022

**NEW WORKPAL FEATURES INTRODUCED**

The Workpal team collaborated with PSD to improve the Leave, Claims, and Clock-In/Out functions, resulting in faster and easier transactions with the HR & Payroll system. Workpal also delivered the digital enablers for CoWork@Gov and Career Coach initiatives in support of the Public Service Transformation (PST)'s Future Workplace and Future Workforce. Additionally, Workpal successfully onboarded MINDEF users, enabling them to easily access WOG initiatives.



**CRAWLING THE WORLD WIDE WEB FOR MALICIOUS WEBSITES**

Developed in collaboration with the Ministry of Home Affairs (MHA), PhishMonSG functions like an automated search engine, and uses AI and machine learning to continuously crawl the World Wide Web to identify and flag potentially malicious websites that impersonate Government websites. Actions such as removing and blocking will be taken against websites that are assessed to be malicious.



January 2023

**LAUNCH OF PROGRESSIVE WAGE MARK APPLICATION SYSTEM**

Businesses can apply for and keep track of their Progressive Wage Mark application, as well as retrieve their accreditation certificate via the GoBusiness Dashboard.

A new feature was also launched in June that allows users to check if a business has received the PW Mark accreditation by entering the Unique Entity Number (UEN) of the business.



**Jeremy Sia**  
Product Manager, GoBusiness

Jeremy is from the GoBusiness team that built the Progressive Wage (PW) Mark application system in FY22. The PW Mark is a new accreditation scheme that recognises eligible firms which pay progressive wages to lower-wage workers. Jeremy's team worked closely with their counterparts from the Ministry of Manpower (MOM) team to effectively streamline the entire application process and bring about greater ease of use for businesses. They also participated in various engagement sessions with businesses, where they gained valuable user feedback to further enhance the system. Upon the launch of the accreditation, more than 1,900 eligible businesses were awarded their accreditations automatically without having to submit any online application, and accredited businesses would have their accreditations automatically renewed at the end of each year as long as they meet the requirements, bringing even greater convenience.

Outside of work, Jeremy enjoys going for long runs on new routes to destress and clear his mind.

**“Following the launch of PW Mark, I had the chance to share with businesses about the PW Mark application process and other useful features on the GoBusiness platform at various sharing sessions. These sessions were a great opportunity for me to hear their feedback and bring the learnings back to the team to further enhance GoBusiness.”**

**LAUNCH OF GOBUSINESS STEP-BY-STEP GUIDE AND E-ADVISER FOR EMPLOYEE UPSKILLING**

SkillsFuture for Enterprise, developed in collaboration with SkillsFuture Singapore, was added to GoBusiness' suite of services to help businesses navigate the process of employee upskilling by providing guided steps on how they can get started, such as identifying their skills gaps, finding suitable training courses and programmes, and checking their eligibility for subsidies and funding.

Businesses can also make use of the e-Adviser for Skills Training to receive tailored recommendations on training courses, grants and subsidies based on their business needs.

**FIRST STACK MEETUP FOR GOV SESSION HELD**

STACK Meetup For Gov is a new platform that helps public agencies learn about GovTech's centrally developed products. The first session, which featured BookingSG, CrowdTaskSG, GatherSG, and GovWallet, attracted over 90 attendees with an average of five agencies expressing interest in adoption.



**INTRODUCING GAMIFICATION ELEMENTS FOR CROWDTASKSG**

CrowdTaskSG (CTSG) is a citizen engagement tool that harnesses the power of crowdsourcing and gamification to improve the delivery of public services. It aims to bridge the gap between citizens and the Government by empowering public agencies to co-create with citizens.

The CTSG team, part of the Government Digital Services division, launched their first gamified campaign in January — a referral leaderboard to encourage users to bring more users on board, and to increase engagement levels on the platform. This gamification strategy saw an increase of about 10 per cent of registered citizen users and further affirmed the team's direction for gamification.





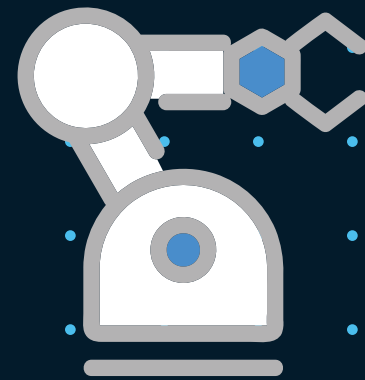
February 2023

**LIMITING THE USE OF SINGPASS TO ACCESS SERVICES FROM OVERSEAS**

To reduce the risk of unauthorised use, a feature launched in February 2023 gives Singpass users the option to block logins to digital services (e.g. Central Provident Fund or telecommunication services providers) from an overseas Internet Protocol (IP) address.

**ENHANCING THE CAPABILITIES OF BOOKSHELF SCANNING ROBOTS IN PUBLIC LIBRARIES**

The bookshelf scanning robots at Tampines Regional Library are now able to navigate autonomously between and within floors, as well as interface with building infrastructure. This is owing to the implementation of a new software service by engineers from GovTech's SCTD that facilitates robot interoperability.



March 2023

**FORMATION OF THREE FORWARD-DEPLOYED DATA SCIENCE TEAM**

Three teams from GovTech's DSAID were deployed to the Singapore Tourism Board (STB), the Prime Minister's Office, Strategy Group (PMO-SG), and MSF respectively in FY2022. Engineers in these teams worked closely with their counterparts in other agencies to introduce or augment data science capabilities, such as using data analytics to inform better policy formulation and improve operation processes.

**DEPLOYMENT OF OPEN DIGITAL PLATFORM AT WOODLANDS NORTH COAST**

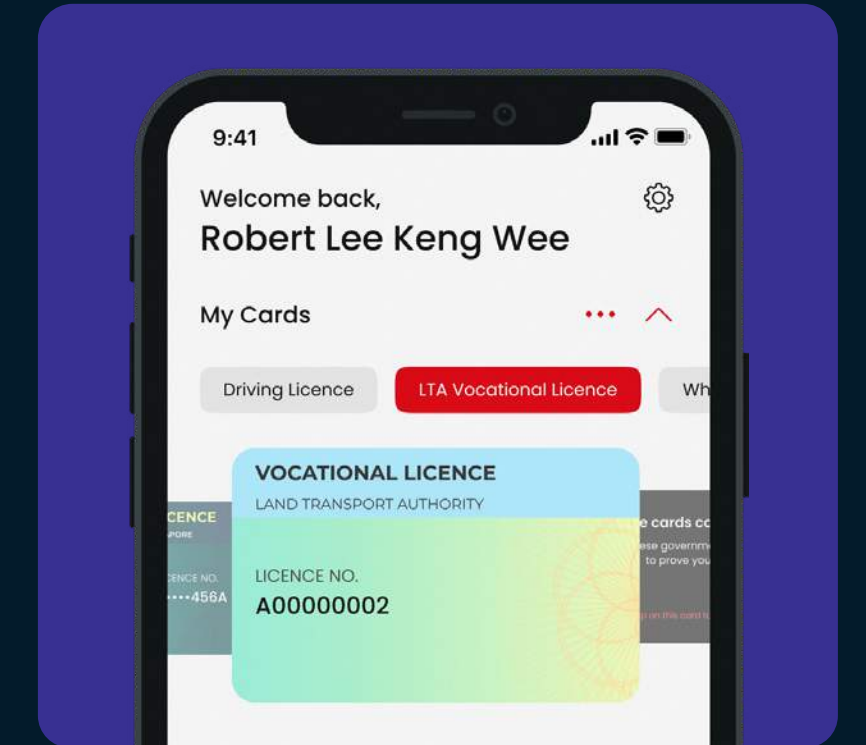
The Open Digital Platform (ODP) was deployed and operationalised at a new location in Woodlands North Coast, allowing for the remote management of various building systems such as lifts, cameras, and sanitation. This comes ahead of ODP's full-scale deployment in the Punggol Digital District in 2024.

**LAUNCH OF DOMAIN-BASED MESSAGE AUTHENTICATION REPORTING AND CONFORMANCE (DMARC)**

To eliminate the possibility of Government email domains being used in phishing scams, DMARC was implemented across all 225 Government email domains. DMARC, an email authentication protocol, leverages other email anti-spoof measures such as Sender Policy Framework and Domain Keys Identified Mail to enhance email security for government agencies.

**LAUNCH OF DIGITAL VOCATIONAL LICENCE ON SINGPASS APP**

With the Digital Vocational Licence, vocational licence holders no longer need to worry about replacing lost or damaged physical cards as they can easily access it through the Singpass app. This feature was the result of a collaboration between GovTech and the Land Transport Authority (LTA).



**Chloe Lim**  
Product Manager, National Digital Identity Division

Chloe is from the team that worked with the Land Transport Authority and Ministry of Health (MOH) to bring the Digital Vocational Licence and Community Health Assist Scheme (CHAS) card respectively to the Singpass app. As a Singpass Myinfo product manager, her work involves close collaboration with different ministries and agencies to unlock new datasets that serve the needs of both GovTech's partners and Singpass users. She also works behind the scenes with UX designer colleagues to simplify transactions on the Singpass app — for example, the team decided to display the digital CHAS card and the Digital IC on the same screen for easier verification at clinics.

Outside of work, Chloe is a futsal lover and enjoys reading science fiction.

**"It's a privilege for me to be working on Singpass to create a seamless experience for my friends, family, and fellow Singaporeans."**

# SUSTAINABILITY HIGHLIGHTS

Growing usage of info-communications technologies and smart systems (ICT&SS) has led to increased energy consumption and Greenhouse Gas (GHG) emissions in the atmosphere.

GovTech is leading the way in promoting sustainable digitalisation and public sector IT decarbonisation in line with the Government's goals.



## Formation of GovTech's Sustainability Committee



Front row: (Left to right) Ang Mui Kim, Elaine Phang, Chong Wan Yieng, Faith Koh, Agnes Ong, Dong Wenjuan  
 Back row: (Left to right) Lim Chinn Hwa, Aaron Ma, Victor Huang, Hunter Nield, Sachin Tonk, Henry Chang (Chairman), Liew Hui Ming, Loh Xianghui, Ryan Yeo, Christopher Ong

A committee spanning cross-functional workstreams was established in FY22 to operationalise the GovTech sustainability framework and strategy.

## First GovTech Sustainability Day 2022

Our inaugural GovTech Sustainability Day was held on 27 October 2022. We donated more than 800 electronic devices to non-profit organisation Engineering Good. The donated devices will be refurbished and donated to people in need or sold to raise funds. Those that cannot be refurbished will be harvested for reusable parts.

The event also included a symposium on sustainable digitalisation attended by over 100 people. The symposium featured guest speakers from Google, Amazon Web Services (AWS), and KPMG.



“It is fortuitous that I was given this role to be the sustainability lead for GovTech, where together with my team, we drive the sustainability agenda as a convenor and orchestrator of all internal and external stakeholders and touchpoints of GovTech, as we build the foundation to move towards our 2045 Net Zero goal.

The journey to achieving net zero is going to be long and arduous, with many challenges across the spectrum, given its breadth and depth. While we think big, we start small, and one of the first foremost steps taken was to augment our digital knowhow with a higher literacy in carbon accounting, climate science and energy markets. Raising awareness of digital sustainability will be instrumental in getting everyone onboard this journey.”

Liew Hui Ming  
 Director, Digitalisation Strategy & Partnership Office

# GOVTECH'S SUSTAINABILITY FRAMEWORK & STRATEGY

## VISION

To become a net zero government around 2045

## MISSION

Adopt sustainability as a core principle in our digitalisation business and professional way of life

## AT A GLANCE

SG GREEN PLAN [WHY]

City in Nature

Energy Reset

Sustainable Living

Green Economy

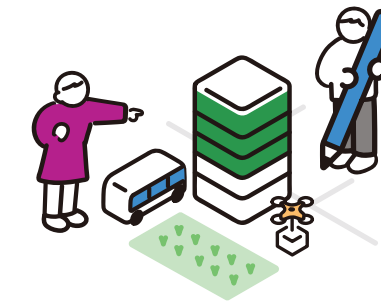
Resilient Future

KEY PILLARS [WHAT]

PILLAR 01  
SUSTAINABLE ORGANISATION

Green GovTech Operating Culture

▶ GreenGov.SG Performance



PILLAR 02  
SUSTAINABLE ICT&SS

Green Digitalisation for the Government

▶ Data Centre Decarbonisation

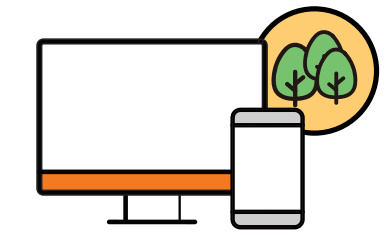
▶ Greening our Supply Chain



PILLAR 03  
DIGITAL INNOVATION FOR SUSTAINABILITY

Green Outcomes Enabled for the Government

▶ Digital Solutions and Products to Create Sustainable Impact



KEY ENABLERS [HOW]

PEOPLE

Green Workplace  
Education & Outreach

PRACTICES

Green Supply Chain  
Architecture Standards & Best Practices

PARTNERSHIP

Innovation & Ops-Tech  
Ecosystem Partnerships

MEASURE AND OPTIMISE



Digitally Enabled Monitoring and Reporting Platform

GOVERN



Sustainability Committee & Workgroups



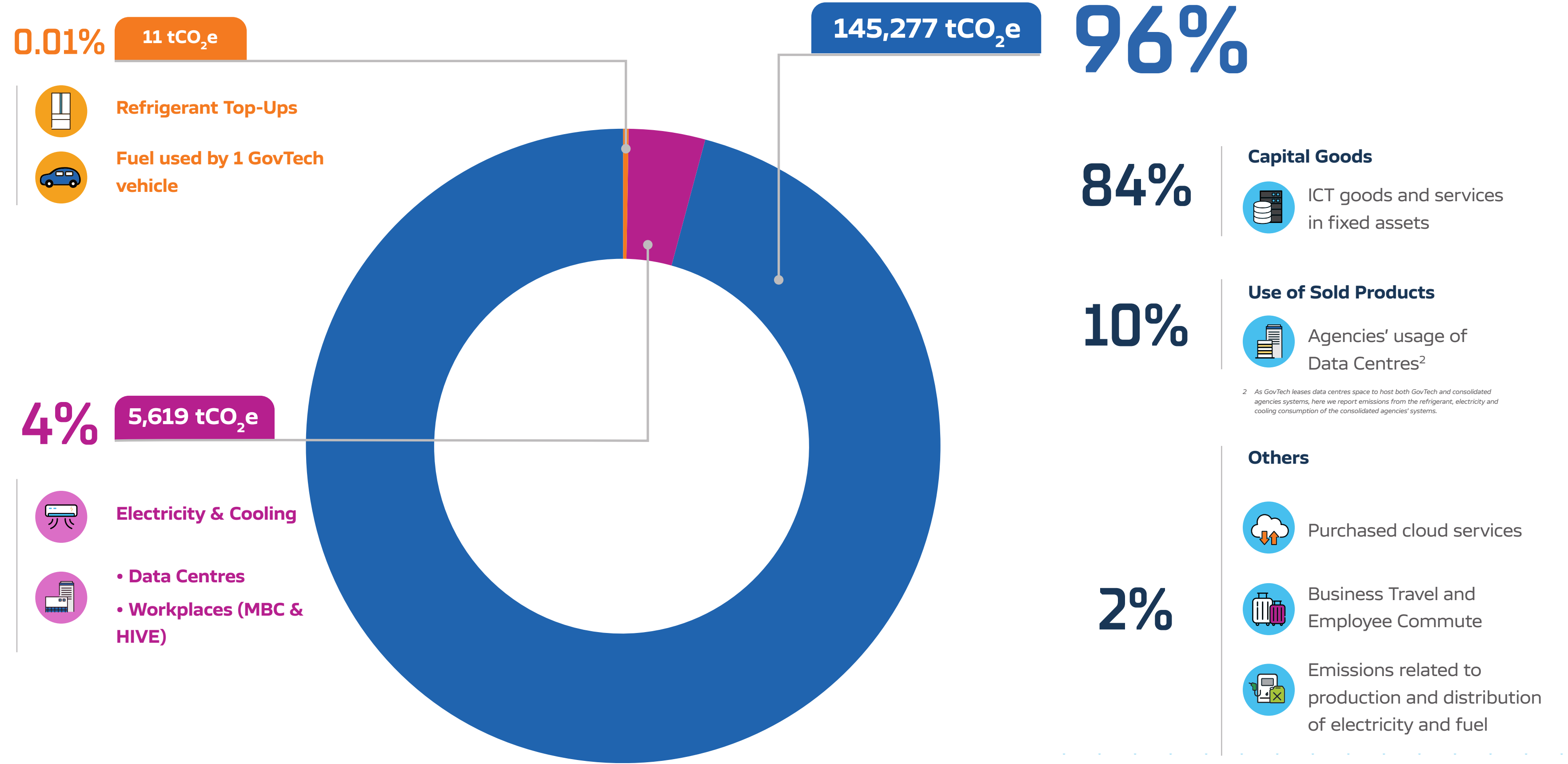
# OUR GREENHOUSE GAS EMISSIONS

In FY22, we started measuring our GHG emissions (Scope 1 direct emissions, Scope 2 and 3 indirect emissions) in accordance with the Greenhouse Gas Protocol Standards<sup>1</sup>.

Most of our Scope 1 and 2 emissions in the reporting period came from our energy consumption in leased data centres, and the opening of the Government Cyber Security Operations Centre to centralise cybersecurity operations across government agencies.

**Legend**

- SCOPE 1** — Direct emissions from owned or controlled sources
- SCOPE 2** — Indirect emissions from the generation of purchased energy
- SCOPE 3** — Other indirect emissions that occur across the value chain



<sup>2</sup> As GovTech leases data centres space to host both GovTech and consolidated agencies systems, here we report emissions from the refrigerant, electricity and cooling consumption of the consolidated agencies' systems.

<sup>1</sup> Emissions calculations exclude GovTech's subsidiary, Assurity Trusted Solutions Pte Ltd. GovTech engaged an external consultant to advise on emissions baseline, inventory, calculation, and selected scope 3 categories based on materiality in compliance with the GreenHouse Gas (GHG) Protocol. For details on Greenhouse Gas Protocol Standards, please see [here](#).

PILLAR 01

# SUSTAINABLE ORGANISATION

Green GovTech  
Operating Culture



## KEY ENABLERS (PEOPLE)

- Green Workplace
- Education & Outreach



GovTech supports the United Nation's Sustainable Development Goals, aligned with the commitments made by the Singapore Government under the 2030 Agenda for Sustainable Development.

## GreenGov.SG Performance

### ELECTRICITY

GovTech's Electricity Utilisation Index (EUI) was:

- ↓ 2% in FY22 compared to the last reporting period
- ↓ 19% from the average of 2018 to 2020 levels

This was due to the implementation of energy efficiency equipment in our offices, our cloud-first policy, and the leasing of Green Mark Platinum data centres.

**Top 25%** As a result, our offices are in the top 25% for energy efficiency among office buildings in Singapore.

### GovTech's Electricity Utilisation Index (EUI) from 2018 to 2022

	FY18-FY20 (Baseline)	FY21	FY22
EUI (kWh/m <sup>2</sup> ) <sup>1</sup>	126.98	104.93	102.48

<sup>1</sup> EUI methodology does not include (a) energy required for cooling and (b) electricity consumption at DC locations 1, 2, 3 and 4, (c) fuel used in operations. EUI methodology only includes electricity consumption at our offices, and is based on GreenGov.SG metrics.

### GovTech awarded Eco-Office Elite

In August 2022, GovTech HQ and HIVE offices were awarded the Eco-Office Elite certification by the Singapore Environment Council (SEC), which recognises offices that have achieved excellent environmental performance.



### WATER

GovTech's Water Efficiency Index (WEI) was:

- ↓ 9% in FY22 compared to the last reporting period

### GovTech's Water Efficiency Index (WEI) from 2018 to 2022

	FY18-20 (Baseline)	FY21	FY22
WEI (m <sup>3</sup> /headcount/day) <sup>2</sup>	2.31	2.88	2.61

<sup>2</sup> Water Efficiency Index (WEI) is defined as the water consumption divided by the number of headcount / occupants. WEI methodology only includes water consumption at our offices, and is based on GreenGov.SG metrics.

Increase from the baseline was attributed to the reduced headcount in office during the pandemic, and step-ups in office sanitisation efforts. We have since implemented efficiency improvements to bring our WEI down.

### Water Efficiency Improvements:

- Installed water fittings with Water Efficiency Labelling and Standard (WELS) 3-ticks excellent rating, where available.
- Installed water thimbles to reduce the water flow rate.
- Adjusted water valves to reduce water pressure.

### WASTE

GovTech's Waste Disposal Index (WDI) in 2022

	FY22 (Baseline)
Waste Disposal Index (WDI) (kg / headcount / day) <sup>3</sup>	0.10

<sup>3</sup> Waste Disposal Index (WDI) is defined as the waste disposed divided by the number of headcount / occupants. WDI methodology only includes waste disposal at our offices, and performance is baselined to FY22 disposal levels only. This is in accordance with GreenGov.SG metrics.

### Upcycling Coffee Grounds at GovTech's Office

After the COVID-19 pandemic, most of our staff have returned to work in our offices at least twice a week. This led to an increase in coffee grounds waste from our cafes.

To reduce such waste, a circular economy-based initiative was introduced in March 2023. The coffee grounds were collected and upcycled into new products including mugs, some of which were purchased for our offices.



PILLAR 02

# SUSTAINABLE ICT&SS

Green Digitalisation for the Government



## KEY ENABLERS (PRACTICES)

- Green Supply Chain
- Architecture Standards & Best Practices

## Data Centre

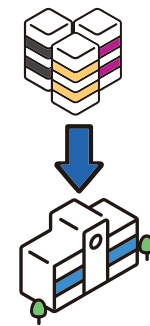
The Singapore Government is committed to reduce electricity consumption in the public sector's data centres.

We are working to minimise the environmental footprint of government data centres by adopting the following key strategies:



GovTech will continue to move on-premise data systems to the cloud. Based on data collected, a system on the cloud produces on average 70 per cent less CO<sub>2</sub><sup>1</sup> than its on-premises counterparts.

<sup>1</sup> Cloud emissions reported by service providers include carbon offsets purchased.



Continue consolidation of systems still housed at individual agency data centres to Government Data Centres (GDCs)

- Note:
- GDCs are Green Mark Platinum
  - An agency system on average produces ~25 per cent more tCO<sub>2</sub>e than a GDC.

## Greening our Supply Chain

From 2024, up to five per cent of evaluation points in the Government's procurement tenders will be allocated for sustainability-related considerations.

Ahead of the scheduled implementation of the policy, GovTech has taken active steps to incorporate sustainability-related considerations in relevant tenders and upcoming procurements.

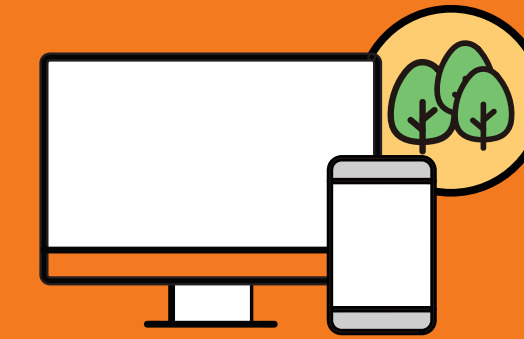
Examples include:

- ensuring the availability of hardware parts for upgrades and replacements,
- promoting energy efficient network equipment and cabling infrastructure,
- as well as adopting ENERGY STAR as well as EPEAT Silver+ or equivalent standards where applicable.

PILLAR 03

# DIGITAL INNOVATION FOR SUSTAINABILITY

Green Outcomes Enabled for the Government



## KEY ENABLERS (PARTNERSHIPS)

- Innovation & Ops-Tech
- Ecosystem Partnerships

## Digital Solutions and Products to Create Sustainable Impact

### SupplyAlly — Helping scale nationwide distribution efforts

SupplyAlly is the Singapore government's centralised distribution system that enables items from different government schemes to be handed out to the public, such as recycling boxes, masks, and COVID-19 test kits.



### Open Digital Platform — Integrated approach to reducing emissions

GovTech has partnered with JTC Corporation to develop the Open Digital Platform (ODP) in the Punggol Digital District (PDD). The ODP centralises the management of various modern and eco-friendly amenities including:

- electric autonomous buses,
- a smart grid that makes use of renewable energy and optimises the use of electricity,
- a smart parking system with an app that allows drivers to reserve parking spaces with car plate recognition technology for simple access to parking lots.

### Digital Government Services — Reducing physical waste and commute

GovWallet x NS55 Credits



GovWallet enabled the digital distribution of NS recognition benefits to more than one million SAF, SCDF, and SPF officers through the LifeSG app — displacing paper cheques and vouchers.

# BOARD OF DIRECTORS

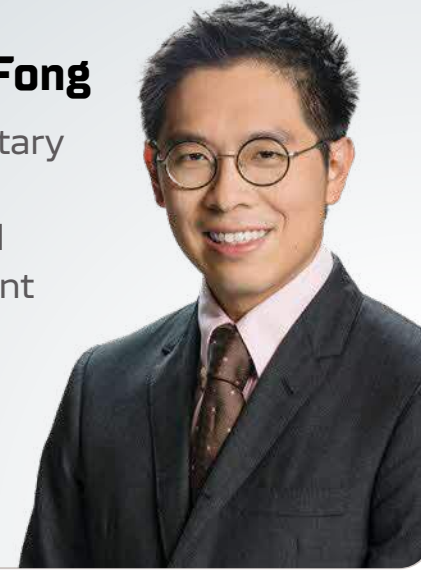
## Mr Joseph LEONG

Chairman,  
Permanent Secretary,  
Smart Nation and  
Digital Government



## Mr CHNG Kai Fong

Permanent Secretary  
(Development),  
Smart Nation and  
Digital Government



## Mr GOH Wei Boon

Chief Executive,  
Government  
Technology Agency



## Mr Bojan BLECIC

Senior Vice President,  
Head of Experience  
Design,  
OCBC Bank



## Mr Derrick GOH

Managing Director  
and Head of Group  
Audit,  
DBS Bank



## Ms Lesly GOH

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Advisor,  
World Bank Group



## Prof HO Teck Hua

President,  
Nanyang  
Technological  
University



## Ms Melissa KHOO

Deputy Secretary  
(Higher Education  
and Skills),  
Ministry of Education



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Chief Executive,  
Cyber Security  
Agency



## Ms Stacey LACY

Asia Pacific Chief  
Information  
Officer and Head  
of Operations &  
Technology Asia,  
Citi



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Chief Executive,  
Info-communications  
Media Development  
Authority



## Mr LIEW Nam Soon

EY ASEAN Managing  
Partner and Managing  
Partner for Singapore  
and Brunei



## Mr Shonn MILLS

Technology Advisor



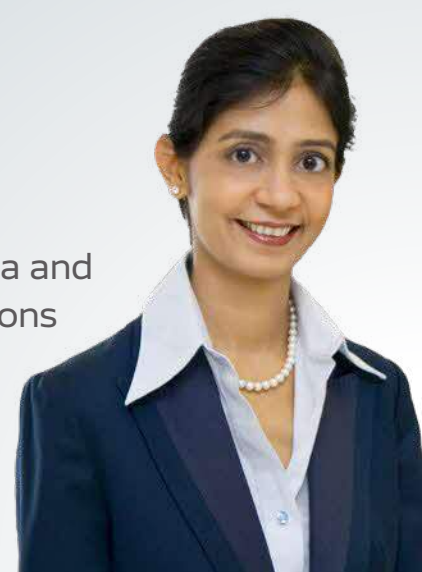
## Mr Noah PEPPER

Technology Investor



## Ms Vaishali RASTOGI

Global Leader of  
Technology, Media and  
Telecommunications  
Business,  
BCG



## Mr Mervyn TAN

Chief Executive,  
Defence Science and  
Technology Agency



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Chief Executive



**Mr CHANG Sau Sheong**

Deputy Chief Executive,  
Product and Engineering



**Mr Henry CHANG**

Deputy Chief Executive,  
Services, Governance and  
Cybersecurity



**Mr Dominic CHAN**

Assistant Chief Executive,  
Product Management, and Senior  
Director, National Digital Identity



**Mr TAN Eng Pheng**

Assistant Chief Executive,  
Services



**Mr Bernard TOH**

Assistant Chief Executive,  
Strategy and Corporate  
Development



**Mr CHAI Chin Loon**

Government Chief Information  
Security Officer and Senior Director,  
Cybersecurity



**Mr LIM Thian Chin**

Senior Director,  
Governance Group



**Mr Kevin NG**

Senior Director,  
Government Digital Services —  
Central



**Mr D. N. PRASAD**

Senior Director,  
People and Organisation



**Mr Jason SEE**

Senior Director,  
Data Science and Artificial Intelligence



**Mr SING Khang Leng**

Cluster Director,  
Manpower Cluster

# SENIOR LEADERSHIP TEAM



**Mr TAN Bee Teck**

Senior Director,  
Education Cluster and  
Standard Products



**Mr Richard TAY**

Senior Director,  
Government Infrastructure Group



**Mr Vlastimil CHVOJKA**

Senior Director,  
Product Innovation Centre



**Mr Steven KOH**

Director,  
Government Digital Services  
— Agile Consulting & Engineering



**Mr Eyung LIM**

Director,  
Government Digital Services  
— Dcube



**Mr James TAN**

Director,  
Smart City Technology



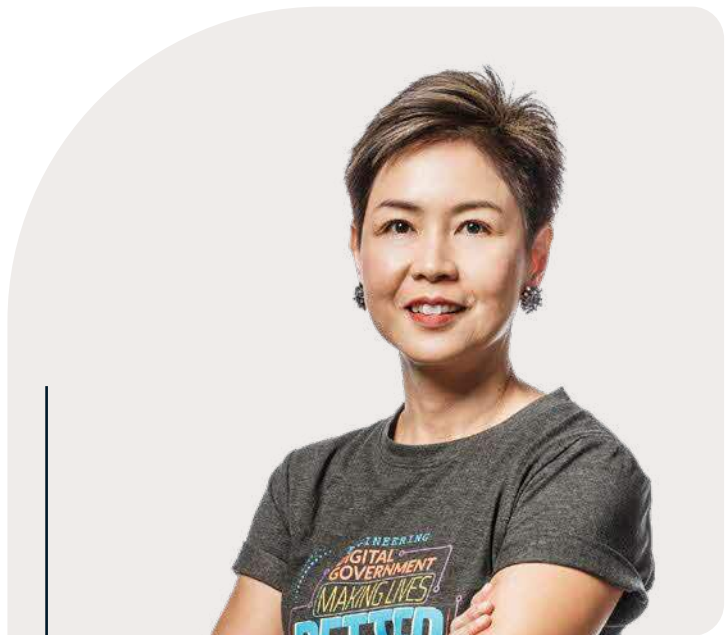
**Mr Jordan TAN**

Director,  
Digital Workplace



**Mr Gabriyel WONG**

Director,  
Moments of Life



**Ms CHONG Wan Yieng**

Director,  
Communications and Marketing



**Mr Vincent KOR**

General Counsel,  
Legal



**Mr LOH Xiang Hui**

Director,  
Finance and Procurement

# MEMBERS OF BOARD COMMITTEES

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- ▶ **Mr Derrick GOH**  
Chairman
- ▶ **Ms Melissa KHOO**  
Member
- ▶ **Ms Stacey LACY**  
Member

## People Matters & Remuneration Committee



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Chairman
- ▶ **Mr CHNG Kai Fong**  
Member
- ▶ **Mr GOH Wei Boon**  
Member
- ▶ **Prof HO Teck Hua**  
Member

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- ▶ **Mr LIEW Nam Soon**  
Chairman
- ▶ **Mr Bojan BLECIC**  
Member
- ▶ **Mr GOH Wei Boon**  
Member
- ▶ **Mr David KOH**  
Member

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Chairman
- ▶ **Mr LEW Chuen Hong**  
Member
- ▶ **Mr Shonn MILLS**  
Member
- ▶ **Mr Noah PEPPER**  
Member
- ▶ **Ms Vaishali RASTOGI**  
Member
- ▶ **Mr Mervyn TAN**  
Member

# MEMBERS OF SUBSIDIARY

Assurity Trusted Solutions Pte Ltd (Assurity) is a wholly-owned subsidiary of GovTech. It is appointed by the Government of Singapore as the National Certification Authority (NCA) for the issuance and management of Certificates in Singapore. Its application to be an accredited CA under the Electronic Transactions Act (Cap. 88) (ETA) was granted by the Controller of Certification Authority on 26 October 2021.

Assurity is also the appointed authorised provider of Singpass products to promote the adoption and use of the products to the private sector.



**Mr Robert CHEW**  
Chairman,  
Assurity Trusted Solutions  
Pte Ltd



**Ms LIM Bee Kwan**  
Chief Executive Officer,  
Assurity Trusted Solutions  
Pte Ltd



**Mr Dominic CHAN**  
Assistant Chief Executive,  
Product Development &  
Management  
Government Technology  
Agency



**Mr Eddie CHAU**  
Board Advisor,  
Assurity Trusted  
Solutions Pte Ltd



**Mr KWOK Quek Sin**  
Chief Digital Officer,  
Raffles Medical Group



**Mr LAM Chung Nian**  
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**Mr Bruce LIANG**  
Head of Strategic  
Projects, Sea Limited



**Ms TAN Khiaw Nghoh**  
Retired Partner,  
PricewaterhouseCoopers LLP



**Mr WANG Jiun Haur**  
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**Ms Shirley WONG**  
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