GOVTECH
GOVERNMENT TECHNOLOGY
AGENCY OF SINGAPORE

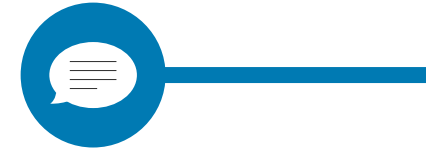# BUILDING TECH FOR PUBLIC GOOD; MAKING LIVES BETTER
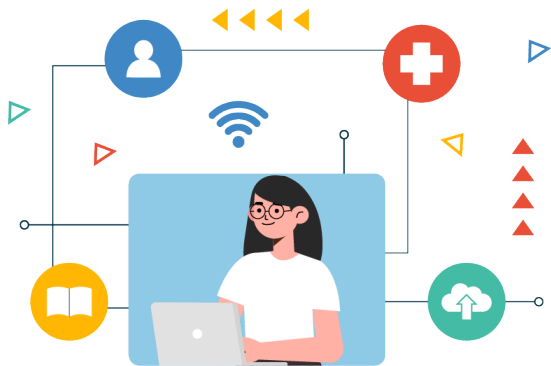
Annual Report 2023

CONTENT

CHAIRMAN'S MESSAGE

The past year has been a significant journey for GovTech. The artificial intelligence revolution, rising cyber threats, and the growing need for resiliency and digital sustainability as citizens and businesses increasingly rely on digital government services, are among the key tech developments GovTech must address as we advance into the next phase of Smart Nation.

In response, we have reaffirmed our mission to engineer a digital government that improves lives. By making strategic shifts, we aim to remain relevant, scale sustainably, and position ourselves for long-term success. Our focus has sharpened around the core belief that GovTech must enable the digital transformation of agencies. We will do this through building excellent products and helping other public agencies thrive amidst a rapidly evolving technology landscape. These priorities have guided the efforts of our GovTechies in 2023:

Delivering People-Centric Digital Solutions

Our engineers developed the **recursive Machine-Learning Site Evaluator (rMSE)** for the Ministry of Home Affairs, a tool which works in the background to identify potential scam websites quickly and accurately. We enhanced convenience for citizens by fully digitalising the marriage registration process through the **Our Marriage Journey** portal and streamlining medical claim submissions via the **National Platform for Healthcare Claims**. Our **Sensei Care Kit** trial, which integrates tablets with health monitoring devices for seniors, reflects GovTech's commitment to inclusive solutions, particularly for the vulnerable and less tech-savvy.

Heeding Prime Minister Lawrence Wong's National Day Rally call to reduce regulatory burdens and foster innovation, GovTech has onboarded over 100 licences for direct application through the **GoBusiness** portal, with the aim to double this number by the end of FY24. By working closely with other government agencies, application processes will be further streamlined and enhanced. In partnership with MOM, we co-developed the **iWORK** platform, empowering employers and employees to independently resolve disputes and claims, saving an estimated 90,000 customer hours annually.

With an eye on the productivity gains AI can potentially deliver, we launched the **Pair** AI chatbot assistant for public officers and introduced new functions like **Pair Search**. We enhanced existing tools and infrastructure used by agencies and public officers, including building a **GovWallet** mini-app on Workpal, facilitating employee benefit disbursements.

Joseph Leong
Chairman
Government Technology Agency

CHAIRMAN'S MESSAGE

Deepening Capabilities in Emerging Technologies

As the Government's early adopter of emerging technologies, GovTech has placed much emphasis on building up AI capabilities in FY23. We launched AI tools such as the **Appraiser** testimonial generator and the **Career Coach Role Informer** tool, designed for teachers and jobseekers. We also worked with MOE on the **Adaptive Learning & Learning Feedback Systems**, providing tailored learning recommendations and feedback on students' responses.

We have taken the first steps to deepen AI capabilities across the Public Service by rolling out **LaunchPad**, a central platform for AI discovery and deployment, and **AIBots**, which enables agencies to create generative AI-powered chatbots. The year-long **LaunchPad WOG Ideathon** generated over 400 innovative ideas, and we updated the **Data & AI literacy e-Primer** for agencies to cover Large Language Models (LLMs).
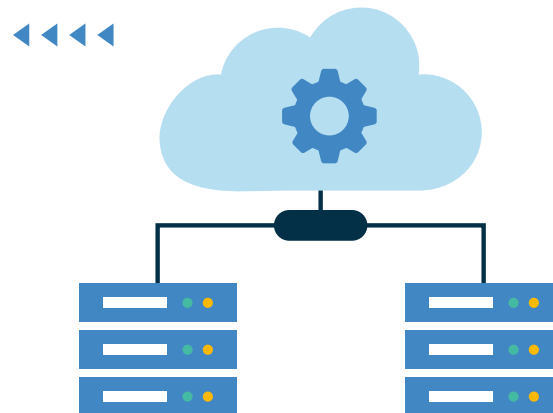
GovTech is supporting the safe and secure adoption of AI by enhancing capabilities to test and validate the safety and security of AI systems. We have developed **AI security and safety playbooks** to guide developers in building robust and trustworthy AI systems and services.

Beyond AI, GovTech partnered with JTC on robotics trials that leverage the **Open Digital Platform** at Woodlands North Coast and Punggol Digital District, and with LTA on the **Electric Vehicle Data-Enabled Network (EDEN)**, which monitors and analyses EV charger usage data.

Modernising Government's IT Infrastructure

In FY23, we looked at enhancing the agility of our product teams through process improvements. By reviewing our procurement and compliance guidelines, we have managed to cut red tape and improve the ease of working with vendors, such as by introducing perpetual contracting for vendors who continue to meet the Government's requirements to reduce administrative burden. We continue to co-develop digital solutions with industry partners, addressing the evolving needs of government agencies.

To enable a better user experience while enhancing the security of government IT infrastructure, we implemented **cloud-native technologies** and **zero-trust architecture** on the devices used by public officers.

Digital Sustainability

As we continue to build tech for public good, we recognise the importance of digital sustainability. We are committed to minimising our digital footprint and promoting responsible digital practices as part of our journey towards reaching Net Zero around 2045. In FY23, we have made strides in reducing energy consumption in our workplace and incorporating sustainability considerations into our procurement and IT infrastructure decisions, ensuring that our digital solutions not only meet the needs of the present but consider the needs of future. Our commitment to digital sustainability is not just about reducing our impact on the environment; it is about ensuring that our digital services are sustainable, resilient, and capable of supporting Singapore's Smart Nation vision in the long term.

Conclusion

GovTech is at a pivotal moment and we must be prepared for more changes and adjustments along the way. I am heartened to see the progress we have made, and how many GovTechies are rising to the challenge —overcoming silos and adapting to new ways of collaborating. The dedication of our GovTechies to building Tech for Public Good is what defines GovTech and I look forward to working with the team to improve many more lives in the years ahead.

Joseph Leong
Chairman
Government Technology Agency

STATISTICS

Annual Digital Government Perception Survey 2023

Background and Objectives

The Surveys on Satisfaction with Government Digital Services (Citizens and Businesses) is conducted annually by the Smart Nation Group (SNG) 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 October 2023 to February 2024 for the reporting period of FY2023 (1 April 2023 to 31 March 2024).

Citizens

Research Methodology

1,502
Respondents

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

Businesses

Research Methodology

1,370
Respondents

were surveyed via telephone interviews.

Survey Results

83%

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

97%

of respondents agreed that G2C Digital Services have improved, and **98%** would encourage their friends and families to use it.

94%

of respondents rated the level of G2C services as close to the level of the best Digital Services they have used.

Citizens were most satisfied with the **reliability**, and least satisfied with the **security**, of government digital services.

Survey Results

83%

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

95%

of respondents agreed that G2C Digital Services have improved, and **97%** would encourage their friends and families to use it.

88%

of respondents rated the level of G2C services as close to the level of the best Digital Services they have used.

Businesses were most satisfied with the **reliability** and **ease of use**, and least satisfied with the **seamlessness**, of government digital services.

HIGHLIGHTS

April 2023

▷ Driving WOG innovation with LaunchPad

LaunchPad was developed as a central government platform to discover and use GovTech's data science and AI products and prototypes. It has undergone multiple rounds of improvements to support agencies to take advantage of Large Language Models (LLM), including providing an LLM playground with cutting-edge models and hosting prototypes developed on LLM technologies.

LaunchPad was awarded the GovTech Team Impact Award in 2023 for its pivotal role in enabling agency innovation.

▷ LaunchPad's WOG Ideathon 2023

A year-long ideathon was initiated on LaunchPad to provide a platform for problem statement owners to list their use cases, foster collaboration between business users, and surface problems which may already have solutions available. The ideas submitted also served as a source of business use cases for hackathon teams looking for problems to tackle.

Over 400 ideas were submitted, many of these were matched to central products while others were developed into prototypes.

▷ Applications for probate grants made more accessible with Probate E-Service

Self-represented persons can now apply online to be legally recognised as the executor of a deceased person's estate, streamlining the probate process. The Family Justice Courts and GovTech developed this online service which simplifies procedural steps, leverages technology for direct online filing, and provides a step-by-step walk-through of the application process. It also auto-populates information from government sources via Singpass, facilitates online payment, and allows for a seamless handover to lawyers if legal assistance is needed.

▷ Managing 2 million trees with NParks' Maven II

Maven II is a central geospatial platform developed by NParks and GovTech that empowers 650 officers and 250 landscape contractors in their operations and management of parks, greenery, and wildlife. This platform integrates data from state-of-the-art technologies including sensor management and an intelligent mobile field app, facilitating remote monitoring of park amenities, streamlining work processes for contractors, and automating invoicing and billing. Data harnessed provides landscape companies with crucial insights for greenery management and digitalising work processes, while setting a new standard for efficiency and innovation in park management.

May 2023

▷ Industry Briefing 2023

Industry Briefing (IB) is an annual event where the Government's projected ICT business opportunities for the financial year are shared with the industry. Over 500 industry partners attended IB 2023, with another 1,000 tuning in via our LinkedIn livestream.

HIGHLIGHTS

June 2023

▶ Subscribe to services on the Singapore Government Tech Stack (SGTS) with TechBiz

TechBiz is a service management tool that helps government officers discover, subscribe, and manage SGTS products on a single console.

By integrating all SGTS products into a single console and offering a consistent and streamlined interface for users, TechBiz overcomes the complexity of reconciling subscription plans, resource usage and invoicing data across multiple products as more SGTS products are rolled out across the government.

Yong Weng Kiat
Software Engineer, Government Digital Products

Weng Kiat is from the team that built TechBiz, a portal that streamlines the process for government agencies to subscribe to SG Tech Stack products, saving time and effort. When the team's Quality Assurance (QA) engineer went on maternity leave, the remaining members had to divide the workload of testing and regression among themselves despite not having much experience in this area. Working with colleagues that give him the space and freedom to express himself and share their vast knowledge and experience is what Weng Kiat enjoys most in GovTech.

An introvert, Weng Kiat prefers to spend his free time recharging his energy levels at home. This typically involves playing games or watching anime and drama, but he does still enjoy the occasional meet-up with friends.

"This experience deepened our appreciation for the meticulous work our QA engineer undertakes with every release, ensuring the quality of (the TechBiz) portal."

▶ Inspiring the next generation at GovTech's GeekOut Bootcamp

GeekOut is GovTech's flagship tech bootcamp for junior college and polytechnic students (and equivalent). Typically held during the June school holidays, the bootcamp aims to expose students to tech through hands-on workshops, hackathons, and opportunities for networking with our engineers. Running GeekOut is also an opportunity for GovTech to give back to the community and provide a platform to inspire students to come up with innovative solutions to real world problems. In 2023, there were more than 65 participants ideating smart city solutions to elevate quality of life and promote sustainability.

HIGHLIGHTS

▶ Assisted Living trials of Sensei Care Kit

The Sensei Care Kit (SCK) is designed to empower seniors to monitor their health independently. It comprises a tablet with integrated health monitoring devices, including a precise blood pressure monitor and a weighing scale. Seniors gain instant insights into their health readings via the tablet.

The Sensei team is working towards an "assisted living tech suite" that can help to catalyse active ageing and ageing in place.

Lily Dalka
Systems Engineer, Smart City Technology Division

Lily is from the team that built the Sensei Care Kit (SCK), which offers a one-stop health monitoring station for seniors. The project has given Lily the opportunity to be a full-stack developer and work on all layers of the SCK system from backend infrastructure to user experience, which she says has reshaped her mindset. Over the course of the trial, the team often spoke to participating seniors to get their feedback and hear their concerns.

Lily is American and her free time involves a lot of "boring expat things". These include googling Singlish phrases, repeating zi char orders to herself and trying to get the distinction between "E mian" and "U mian" right. She is also working on her conversational Mandarin to communicate more closely with her husband's aunts.

"Here, I found a deep appreciation of Singapore's culture of caring for the people who came before you, and I am closer to understanding what Tech for (Public) Good can be."

▶ Helping users navigate LLMs with the Prompt Engineering Playbook

The playbook was designed to help users navigate the new ways of interacting with LLM-powered AI through what we now call prompt engineering. It provides practical insights and guidance to best interact with this new form of AI.

The CO-STAR methodology detailed in the playbook has been used widely as part of the Prompt Royale Award (GovTech's prompt engineering competition), by other government agencies and the public, and has even garnered overseas attention.

▶ Introducing prompt engineering at the Data Arcade Tournament 2023

The Data Arcade Tournament 2023 (DAT) engaged over 1,700 government officers across 75 agencies, setting a new high in its sixth year. The tournament expanded to include prompt engineering capabilities, reinforcing our commitment to data and AI capability building across the government. The tournament featured three awards:

- **Data VIZard Award:** 250 participants across 130 teams demonstrated exceptional data storytelling and visual analytics skills.

- **ImpactiVIZ Award:** 970 participants across 420 teams highlighted the real-world impact of data dashboards.

- **Prompt Royale Award:** In its debut year, this award attracted over 400 participants across 75 agencies, emphasising the importance of prompt engineering.
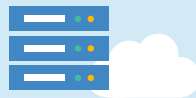
HIGHLIGHTS

July 2023

▶ Reforming Singapore's national healthcare system with Healthier SG

Part of a national preventive care strategy implemented by MOH and GovTech together with Synapxe, this initiative allows Singaporeans above 40 to work with their family doctors and general practitioners on a health plan which includes lifestyle changes and regular check-ups (with 890,000 sign ups as of May 2024). Once enrolled under Healthier SG, residents will get free annual check-ups as well as nationally recommended vaccinations and health screenings, which will be fully funded by the Government.

▶ Enhancing Cloud Capabilities across the Government

The integration of the AI Government Cloud Cluster (AGCC) and the launch of Government on Commercial Cloud (GCC) 2.0 for Google Cloud Platform (GCP) mark significant milestones in advancing government operations and service delivery. As an enabler of the AI Traiblazers initiative, AGCC empowers government agencies to lead transformative digital initiatives and deliver cutting-edge services to our citizens.

Another key initiative towards the end of 2023 was the seamless migration of over 600 accounts from GCC 1.0 (AWS) to GCC 2.0 (AWS), alongside 100 accounts transitioning from GCC 1.0 (GCP) to GCC 2.0 (GCP). This transition highlights GovTech's commitment to adopting advanced cloud technologies to enhance digital services. By shifting to a modernised cloud framework, government agencies gain access to advanced capabilities, fostering greater agility, security, and efficiency. The result is faster, more reliable, and secure public services.

▶ Making the Primary 1 registration process seamless with OnePlacement

The OnePlacement portal for Primary 1 registration replaces the online application form for Phases 1, 2A and 2B, as well as the P1 Internet System for Phases 2C and 2C Supplementary used in previous years. Over 40,000 parents used the portal to register their child in their chosen school, with the average transaction time reduced from 10 min to 2.8 min. The portal introduces the "child's phase eligibility check" feature, allowing parents to verify and confirm the eligibility status of their child's application, reducing potential anxiety.

▶ Introducing LLMs to the Data & AI Literacy ePrimer

The Data & AI Literacy ePrimer is an e-learning package designed to educate public officers about data and AI, making complex concepts easily understandable.

With LLMs and AI being the prime focus of 2023, the team refreshed the ePrimer to include topics on LLM, which include use cases, prompt engineering topics, and the potential risks and limitations of LLMs.

▶ Improving SCDF's incident management with HIMS 2

SCDF's HazMat Incident Management System (HIMS) 2 uses a combination of mobile (300 units) and fixed sensors (12 stations) to form a sensor grid to detect release of hazardous materials into atmospheric air. The data from the fixed sensor grid helps to proactively alert SCDF of any imminent HazMat release and upon detection to enable immediate public protective measures. Studies have shown that this proactive approach would result in a 90 per cent decrease in casualty numbers.

▶ Showcasing GovTech's work culture at our Open House

Our inaugural Open House was held on 21 July 2023 to showcase GovTech's work culture and allow networking with our engineers. The event was attended by 98 students and school partners.

Key highlights included lightning talks by the five capability centres, showcasing of projects by our divisions, and office tours for a sneak peek into our workspaces.

HIGHLIGHTS

July 2023 (cont'd)

▶ GovTech is recognised as a Great Place to Work

GovTech was certified as a Great Place to Work-Certified™ organisation from July 2023-July 2024. Great Place to Work® is the most recognised Employment Brand Survey globally and our certification furthers our already evolving and positive employer brand. It is a testament to our continual commitment in making our workplace exceptional for all GovTechies.

GovTech also ranked third on the Singapore Best Workplaces™ in Technology 2023 (Large Category).

Best Workplaces™ in Technology

Great Place To Work®

SINGAPORE 2023

▶ Launch of Government on Commercial Cloud Plus (GCC+)

GCC+ was launched as the central cloud hosting platform for "Confidential" systems, and to allow agencies to maximise benefits from the cloud.

GCC+ has significantly enhanced the security and resiliency of "Confidential" systems, thus increasing the reliability of services to both the public and government officers. It enables greater service continuity and minimises disruptions and downtime for uninterrupted government operations.

Sathiyamoorthi Chinnasamy
Lead Cloud Infrastructure Engineer,
Public Officer Productivity (Infrastructure)

Sathiya leads the team responsible for the design and implementation of cloud networking and identity management. In FY23, he was responsible for orchestrating comprehensive architectural designs for GCC+ network and implementing critical components to ensure a robust and resilient network infrastructure. As the Singapore government was the first in the world to use AWS Dedicated Local Zones (DLZs) to build GCC+, there were many challenges arising from unknowns that his team faced under tight timelines, but Sathiya thoroughly enjoyed the challenge.

In his free time, Sathiya jogs to stay fit and goes for walks with his family.

"When we started the GCC+ project it seemed like a very tough task and every day was a challenge. (But) I really enjoy working with a team to achieve difficult goals and overcome obstacles."
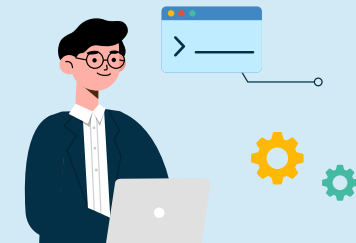
August 2023

▶ Redefining ICT support with IT Service Management (ITSM) SaaS

ITSM SaaS leverages cloud capabilities to redefine the delivery of seamless ICT support experiences for users across the board. From end-users to IT representatives and product owners, everyone benefits from self-service options and omnichannel support, ensuring swift resolutions anytime, anywhere. This user-centric agent workspace elevates productivity, enabling timely resolutions of ICT support issues.

▶ Introducing the CSC Prompt Engineering Course

This course was designed in collaboration with the Civil Service College based on the Prompt Engineering Playbook created by GovTech's Data Science and AI team. It aims to help public officers build prompt engineering skills to interact effectively with LLMs. Participants are also trained to design prompts for specific tasks using LaunchPad (a GovTech platform to enable officers to experience AI safely and securely). The tasks aim to inspire participants on the possibilities of using LLMs for their work and to raise productivity.

HIGHLIGHTS

August 2023 (cont'd)

▶ Helping teachers save time with the Appraiser tool

Appraiser allows teachers to enter the details of the student (personal qualities descriptors, examples of academic and CCA achievements, and professional experiences) and generates a first draft of a full-length testimonial in perfect grammar, using the ChatGPT engine. With Appraiser, teachers can produce a first draft in five minutes versus one to two hours. It also provides variation in vocabulary and expressions, so testimonials do not sound templatised.

▶ Helping employers and employees resolve disputes with iWORK

iWORK is a platform developed by MOM and GovTech which empowers employees and employers to self-resolve disputes and claims, and prevent disputes upstream by improving employment practices. The Online Dispute Resolution and Claims module facilitates faster dispute resolution and enables the digital end-to-end engagement of parties throughout their dispute resolution journey. This includes digital appointments and a chatbot for TADM (Tripartite Alliance for Dispute Management), with estimated time savings of 90,000 customer hours per year.

September 2023

▶ Digital Government Exchange 2023

GovTech hosted over 20 international delegates from 11 countries at DGX 2023. DGX is an annual learning platform for participating governments to share about their digital initiatives, also strengthening international ties.

▶ Connecting businesses to the right IA and IP solutions with GoBusiness IP Grow

GoBusiness IP Grow was launched in collaboration with IPOS International to simplify the process for enterprises to discover their intangible assets (IA) and intellectual property (IP) needs, and to connect directly with the right service providers for global growth and expansion.

It is the first online marketplace for IA/IP services built on GoBusiness, featuring a growing network of leading practitioners and firms across 20 IA/IP service directories. It also includes two e-Advisors:

1. The e-Advisor for IP Service, which helps businesses identify the most relevant IA/IP services based on their business goals.

2. The e-Advisor for IP Service Provider, which matches businesses with suitable IA/IP service providers, considering their needs and preferences.

Through GoBusiness IP Grow, businesses in Singapore are empowered to safeguard their ideas and innovations.

Joan Chin
Senior Product Manager, GoBusiness, Government Digital Products

Joan leads the GoBusiness Continuous Improvement (CI) team in gathering and analysing data to enhance businesses' user experience of the GoBusiness platform. Collecting and processing the vast amounts of data accumulated by GoBusiness can be laborious and time-consuming, but the pay-off has been worth it – the insights generated by Joan's team helped drived GoBusiness' user satisfaction to a new high of 75% in FY23. Joan finds fulfilment in being able to collaborate extensively with other teams in GovTech, such as the Whole-of-Government Application Analytics (WOGAA) team.

Outside of work, Joan can be found spending time with her family and watching movies. She also enjoys gaming, and participated in the inter-division GovTech Cup as part of her division's Mobile Legends team.
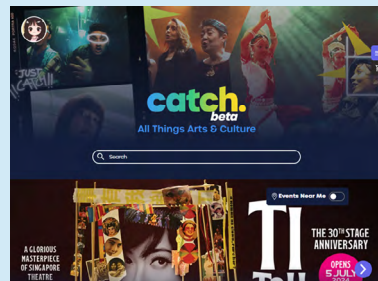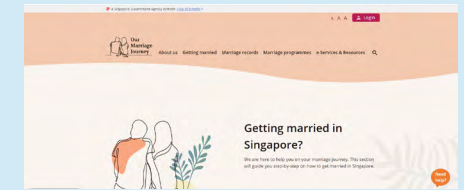
HIGHLIGHTS

September 2023 (cont'd)

▶ Curate a personalised arts and culture experience with Catch.sg

Implemented by the National Arts Council and GovTech, Catch.sg is the largest digital platform for all arts and culture content in Singapore. Since its official launch, Catch.sg has enabled the efficient discovery of arts and culture events for over 200,000 unique users, garnered over 400,000 views, and engaged a community of 2,500 members through curated editorials and comprehensive event recommendations. Catch.sg has supported over 700 arts and culture event organisers, with over 2,000 events being promoted on the Catch website, resulting in 6,000 lead generations and referral traffic to their respective websites.

Janice Chen
Digital Business Analyst, Government Digital Transformation

Janice belongs to the Government Digital Transformation team that developed Catch.sg for the National Arts Council. Her role involved adopting citizen, user, and business-centric approaches to guide the development of Catch.sg's personalised experience. Users can indicate their preferences for arts and culture events when visiting Catch.sg, which are then used to tailor personalised recommendations.

A perfect day for Janice outside of work would include catching up with friends over delicious food or indulging in a relaxing massage.

"Seeing the outcomes of my efforts and knowing that I'm creating a positive impact is truly fulfilling."

▶ Enjoy a more seamless marriage registration process with Our Marriage Journey

The Our Marriage Journey portal developed by the Ministry of Social and Family Development (Civil Marriages), Ministry of Culture, Community and Youth (Muslim Marriages), and GovTech provides couples with more convenience and support in their marriage registration process. The portal facilitates auto-filling particulars using Singpass, booking of solemnisers, completion of declarations online, and issuance of digital marriage certificate for easy storage and retrieval. An average of 28,000 marriages are registered annually, and the introduction of the portal saves citizens an estimated 44,000 hours with its end-to-end digitalised process.

Zulkifli Yahya
Digital Business Analyst, Government Digital Transformation

Zulkifli is from the GovTech team forward deployed to the Ministry of Social and Family Development and worked on the Our Marriage Journey (OMJ) portal. The OMJ portal has nearly halved the number of in-person marriage verifications and declarations at the Registry of Marriages. The OMJ team launched an enhanced version of the portal in September 2023, which introduced digital signing via Singpass and the issuing of digital Certificate of Marriages. Zulkifli and his team members overcame the challenge of implementing a bespoke digital signing solution on a compressed timeline, after learning midway through the development process that they could no longer leverage SignSG.

"GovTech is a big organisation with diverse roles, skillsets, and expertise spanning several business domains. There are a lot of resources to get guidance and learn from, and that you can always depend on when the going gets tough!"
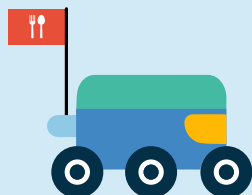
HIGHLIGHTS

October 2023

▶ Upskilling public officers through the Digital Academy Google AI Bootcamps

The GovTech Digital Academy (DA) in partnership with Google Cloud has successfully upskilled over 1,400 public officers across 85 government agencies with the Google AI Bootcamp. These events are a testament to DA's philosophy as a 'Practitioner for Practitioner' academy, working with subject matter experts across the industry.

Through the sessions, public officers learnt about on-trend topics like foundations of AI, applications of AI in Government, ethics of AI, generative AI, and the future of AI. Participants also engaged in hands-on activities to explore how AI can address challenges in the workplace, putting their learnings into practice.

▶ Robot food delivery trial with Open Digital Platform

GovTech and JTC collaborated to trial an autonomous food delivery robot and facial recognition payment. The trial integrated multiple building management systems such as the gantry turnstiles and lift management with a food delivery application. It leveraged Open Digital Platform (ODP), an open standard multi-protocol middleware developed to overcome the challenge of integrating proprietary systems and applications in a single platform.

▶ Enabling accurate air quality data collection with AQMS

GovTech and the National Environment Agency developed and deployed IoT edge devices at 23 NEA AQMS stations across Singapore to enable timely and accurate air quality data collection. Air Quality Management System (AQMS) served as the critical intermediary system that enabled the broadcasting of National Air Quality data to the public through the MyEnv App and haze.gov.sg.

▶ Launch of GovWallet on Workpal app for public officers

A GovWallet mini-app was developed and hosted on the Workpal app to allow government agencies to disburse employee benefits through GovWallet. This way, government employees who are entitled to the benefits can log into the Workpal app with their WoG email ID to access their payouts and spend them at any PayNow or NETS QR merchants.

The GovWallet team supports more than 7 employee benefit schemes across 3 agencies (GovTech, MINDEF and CPFB).

▶ Launch of GovRewards

GovRewards was introduced to more than 800 GovTechies who participated in the Government Digital Services (GDS) day event on 30 Oct 2023. Participants were able to earn points upon registration and visitation to various product booths and when they participated in interactive games. The participants were then able to use points earned to make a redemption of gifts to be collected through the GovSupply system. The team then partnered the Digital WorkPlace team to roll out the rewards mechanism across other government agencies.

▶ Connecting as One GovTech at the GovTech-Conference (GovTech-CON)

GovTech-CON is GovTech's staff conference which happens twice a year. The two conferences are an opportunity to align all staff to GovTech's priorities and focus areas, celebrate our progress and achievements, and for senior leaders and GovTechies to engage with one another. 8 May's GovTech-CON was a bittersweet event as we bade our outgoing CE Ping Soon goodbye and welcomed our incoming CE Wei Boon to the organisation. 20 Nov's GovTech-CON marked the start of GovTech's journey to truly make the organisation a great place to work, where GovTechies can learn and grow.

HIGHLIGHTS

November 2023

▶ Enhancing the job seeking experience with the Career Coach 4.0 Role Informer Tool

The tool gathers jobseekers' information, qualification, skill sets and last job title to generate role recommendation and suggest job listings from multiple job portals, as well as providing industry insights. This helps to reduce time spent on research, address information asymmetry and enhances user efficiency.
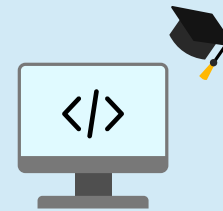
Terence Yap
Senior Software Engineer,
Government Digital Products

Terence's team built the Career Coach Role Informer Tool in FY23, an application that leverages generative artificial intelligence (Gen AI) to equip career coaches with valuable insights based on their clients' profile. A major challenge the team faced was users' initial unfamiliarity with Gen AI and its practical applications to their day-to-day work. To bridge this gap, Terence's team built an early proof-of-concept which they used to help their users better understand the technology's potential. Terence is proud to be working on projects that make a real difference in citizens' lives, and often tells his friends half-jokingly that Gen AI is his true love (in Mandarin the term for true love is pronounced zhen ai). Outside of work, Terence enjoys daydreaming about vacations and reading books with quirky titles.

▶ Training power users at the Data Champions Bootcamp 2023

The Data Champions Bootcamp is an organised training course where public officers learn together through a rigorous and relevant curriculum, coupled with practical hands-on sessions, tools, and products to become champions of data science in their respective agencies.

A record high of more than 1,058 officers graduated from the course in 2023, up from 980 in 2022. A total of 99 projects and use cases across agencies were started because of the bootcamp.

▶ Modernising how medical claims are processed with National Platform for Healthcare Claims

Developed by the Ministry of Health and GovTech, the National Platform for Healthcare Claims modernises three legacy claims-processing systems on MediShield Life, Integrated Shield Plans, and MediSave schemes into a centralised digital platform for medical claims processing. The Outpatient MediSave and MediShield claims platform was launched to four million Singapore citizens and PRs in November, streamlining the overall process for citizens.
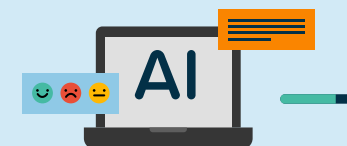
▶ Uplifting the productivity of the built industry with CORENET X

Developed by the Building and Construction Authority and GovTech under the Construction Industry Transformation Plan, CORENET X leverages Building Information Modelling and automation to transform the regulatory approval process for building works, streamlining over 20 touch points into a single coordinated submission reviewed collectively by agencies.

▶ Introducing AI-enabled tools (ALS and LFA) for customised learning in schools

Developed by the Ministry of Education and GovTech, the Adaptive Learning System (ALS) and Learning Feedback Assistant (LFA) systems utilise AI to enhance the customisation of learning and bolster teachers' professional practice. ALS provides tailored learning recommendations for each student based on their responses to questions and activities. The platform has been implemented for all Primary 5 and 6 students and teachers through the Student Learning Space, with plans to extend its reach to all primary and secondary levels by 2025.

LFA comprises a suite of tools that assess students' responses and automatically generate feedback on a variety of tasks, enabling timely feedback to support assessment for learning. LFA tools have been deployed through the Student Learning Space to all 181 primary and 136 secondary schools, serving 450,000 students and 42,000 teachers.

HIGHLIGHTS

November 2023 (cont'd)

▶ Managing government agencies' distribution and disbursement needs with the GovWallet suite

GovWallet as a product suite was rebranded and introduced to public officers at the Digital Services Award event.

The suite of product offerings introduces a dynamic and flexible approach to allowing participants to earn reward points in a way that aligns with their preferences and achievements (GovRewards). Agencies and organisations can convert these earned points into cash incentives (GovWallet) or exciting physical items (GovSupply).

The product suite also includes a robust event management feature that simplifies and effortlessly manages event entries (GovEntry).

Agencies and organisations can tailor their experience, utilising the suite in its entirety or selecting components that align with their unique needs.
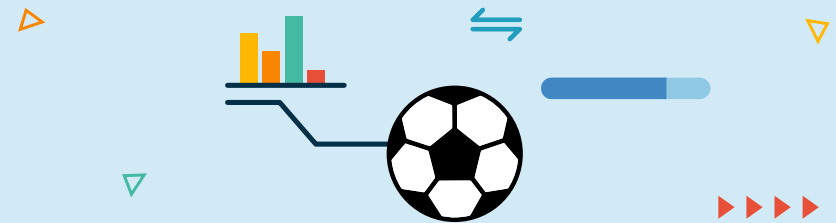
December 2023

▶ Engaging returning Singaporeans at GovTech Talent Connect

GovTech Talent Connect 2023 is our inaugural homecoming event conceptualised by the People & Organisation Division to welcome overseas Singaporeans who are visiting home and engage with locally-based talent. This event was a good opportunity to stay connected with talent and build a stronger awareness of the work and culture in GovTech. The theme of the event revolved around exploring the future of public service technology.

January 2024

▶ Sports data sharing made easy with SportDexSG

The Sport Data Exchange Singapore (SportDexSG) platform developed by SportSG and GovTech provides a suite of data sharing services (e.g. national surveys, public sports facilities), as well as a marketplace and interactive dashboards for the sports industry. These include sport associations and clubs, educational institutes, and small and medium players such as event organisers, sport retailers, sport and recreation facility providers, and sports tech firms. Users can seamlessly download datasets with just one click from the platform, a significant reduction compared to 12 working days before.

February 2024

▶ Enhancing electric vehicle management with EDEN

The EV Data Enabled Network (EDEN) provides a comprehensive overview of the national electric vehicle (EV) charging infrastructure, assuring drivers on the availability and accessibility of EV chargers, and supporting the Land Transport Authority (LTA)'s objective of encouraging EV adoption. Enabling data collection and enforcement of the network uptime requirement for licensed EV Charging Operators ensures overall reliability of the island-wide charging network. More effective and targeted deployment of EV charging points will allow LTA to significantly reduce the need to upgrade carpark switch rooms and substations, reducing the cost of electrical infrastructure upgrading.
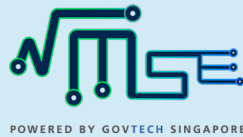
HIGHLIGHTS

February 2024 (cont'd)

▶ Automating the fight against scams with rMSE

GovTech developed the recursive Machine-Learning Site Evaluator (rMSE) to fight scams in a faster and smarter way. rMSE is an algorithm that uses artificial intelligence and machine learning to evaluate hundreds of thousands of suspicious websites daily with an accuracy of over 90 per cent. It continuously learns from law enforcement operations' insights to enhance its efficiency in disrupting scams.

√MSE

POWERED BY GOVTECH SINGAPORE

Winston Chan
Data Scientist, GovTech Anti Scam Products (GASP)

Winston is part of the team that developed GovTech's recursive Machine-Learning Site Evaluator (rMSE). When the product team started work on rMSE in late 2023, they were tasked with operationalising proof-of-concept malicious website classifier models developed by external researchers. However, the team discovered that the models, having been trained on historical scam sites, performed poorly when evaluating present-day scams targeting users in Singapore. Winston's team retrained and improved the model with contemporary local data, reducing false positives by more than three times and increasing the percentage of scam sites successfully detected by almost 10 times. rMSE's current precision and recall accuracy is above 90 per cent.

Outside of work, Winston enjoys reading and going for long walks.

"Overcoming this challenge brought us closer to our goal of fully operationalising a website evaluation service that we were confident could work effectively in the context of our local scam landscape."

March 2024

▶ Organising STACKx for the tech community

GovTech organised two STACKx events in FY23 focusing on artificial intelligence and smart city technology respectively. Over 1,100 participants attended STACKx Data & AI in July 2023, while STACKx Smart City in March 2024 drew an audience of more than 600. The events brought together experts from the government and industry to delve into the latest technology trends, developments, and possibilities.

▶ Facilitating WOG idea generation and hackathons with GovTech's LAUNCH! programme

GovTech's LAUNCH! kick-off event introduced an innovation programme that collaborates with agencies on Ideathons and Hackathons using the LaunchPad platform. The event facilitated networking, showcasing GovTech products, and exploring problem spaces. The event set the stage for upcoming hackathon sprints and workshops, in alignment with innovation projects started by WOG agencies with support from industry partners (AWS, Databricks and Microsoft).

GOVTECH'S SUSTAINABILITY FRAMEWORK & GOVERNANCE STRUCTURE

GovTech ExCo

Reporting to

Sustainability Committee Workgroups

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

Key Pillars [What]

Sustainable Organisation	Sustainable ICT & SS	Digital Innovation
Green GovTech Operating Culture	Green Digitalisation Practices for WOG	Green Outcomes Enabled for WOG

Key Pillars & Enablers [HOW]

PEOPLE	PRACTICES	PARTNERSHIP
Green Workplace	Green Procurement	Innovation
Outreach & Awareness	Green Data Centres	Strategic Partnerships
Education & Enablement	Green Cloud	
	Green Software	

Digital Data Platform   Digitally Enabled Monitoring and Reporting

OUR GREENHOUSE GAS EMISSIONS

17% (9,462)

- Capital Goods
- Use of Sold Products
- Purchased cloud services
- Business Travel
- Employee Commute
- Emissions related to production and distribution of electricity and fuel
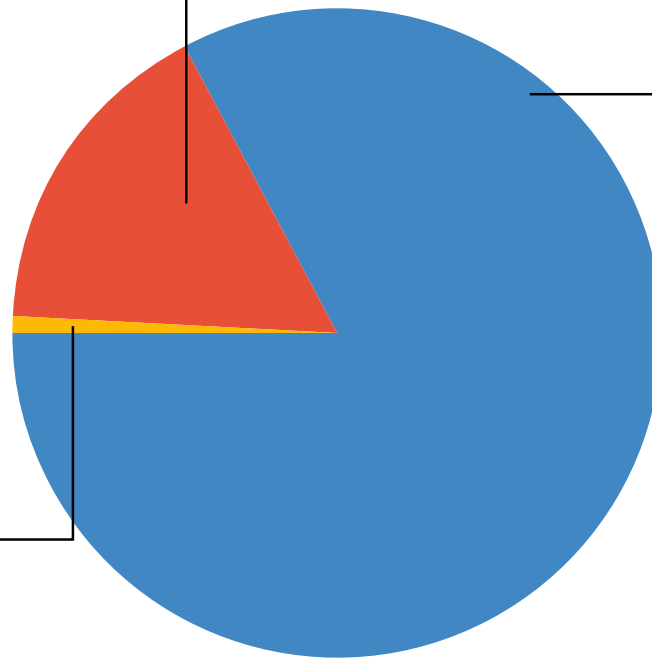
83% (46,387)

- Electricity
- Cooling

0.01% (7)

- Refrigerant Top-Ups
- Fuel used by 1 GovTech Vehicle

Legend

- **Scope 1 (tCO₂e)**
- **Scope 2 (tCO₂e)**
- **Scope 3 (tCO₂e)**

	FY22*	FY23
Scope 1 (tCO₂e)	6	7 (0.01%)
Scope 2 (tCO₂e)	8,564	9,462 (17%)
Scope 3 (tCO₂e)	142,202	46,387 (83%)

FY22 emissions were recalculated primarily due to methodology updates for our consolidated data centre operations to more accurately reflect the distribution between GovTech-operated and Agency-operated workloads.

Emissions calculations exclude GovTech's subsidiary, Assurity Trusted Solutions Pte Ltd. GovTech engaged an external platform to advise on its emissions inventory, and selected scope 3 categories based on materiality in compliance with the GreenHouse Gas (GHG) Protocol.

OUR WORKPLACE ENVIRONMENTAL PERFORMANCE

Pillar 01

SUSTAINABLE ORGANISATION

Green GovTech Operating Culture

GreenGov.SG Performance: Energy

- Our Electricity Utilisation Index (EUI) levels have been steadily declining year-on-year with implementation of more energy-efficiency equipment in our offices and the migration of our on-premise IT workloads to the cloud.

- 20% decrease in 2023's EUI compared to 2018-2020's average.

GovTech's Electricity Consumption from FY18 to FY23

	Baseline (FY18 – FY20)	FY21	FY22	FY23
Electricity Consumption (kWh)	2,325,580	2,291,850	2,238,457	2,221,159

GovTech's EUI from FY18 to FY23

	Baseline (FY18 – FY20)	FY21	FY22	FY23
EUI (kWh/m2)	126.98	104.93	102.48	101.69

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.

GreenGov.SG Performance: Water

- With more employees back in office from the pandemic, water consumption levels have increased.

- In addition to the increase in footfall in office, we have also intentionally replaced all disposal cups and wares with reusable utensils – this has increased water consumption from the washing of reusable cutlery.

GovTech's Water Consumption from FY18 to FY23

	Baseline (FY18 – FY20)	FY21	FY22	FY23
Water Consumption (m3)	757	327	609	889

GovTech's Water Efficiency Index (WEI) from FY18 to FY23

	Baseline (FY18 – FY20)	FY21	FY22	FY23
WEI (m3/headcount/day)	2.31	2.88	2.59	2.99

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.

GreenGov.SG Performance: Waste

- Our WDI for FY23 has remained largely constant as FY22, due to proportional increases in both amounts of waste disposed and occupancy numbers.

- A substantial 52% increase of waste recycled in FY23 (including paper, plastic, glass, cans, and coffee grounds) at GovTech's offices compared to FY22 positively highlights our commitment to reducing and managing waste effectively through sustainable practices, including through adopting the circular economy model.

GovTech's Waste Disposed

	Baseline (FY22)	FY23
Waste Disposed (kg)	24,276	28,482

GovTech's Waste Disposal Index (WDI)

	Baseline (FY22)	FY23
Waste Disposal Index (WDI) (kg / headcount / day)	0.10	0.10

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.
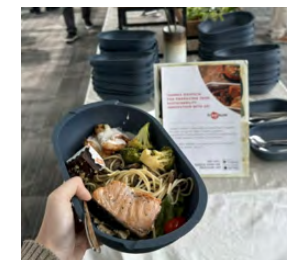
GovTech's Waste Recycled

	Baseline (FY22)	FY23
Waste Recycled (kg)	6111	9307

Spotlight: Zero-Waste Lunch

GovTech's Sustainability Committee hosted a sustainable zero-waste lunch for our GovTech senior leaders to raise awareness about Singapore's food waste challenge.

Every item on the menu was thoughtfully prepared using imperfect and/or surplus ingredients, including the fruits used for drinks. We received excellent feedback and generated interest from other government agencies who wanted to do the same.

OUR DIGITAL SUSTAINABILITY INITIATIVES

SUSTAINABLE ICT & SS
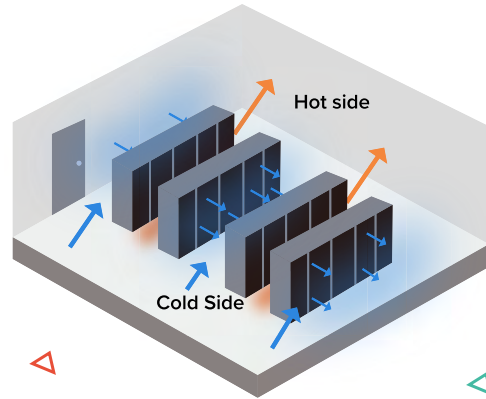
Green Digitalisation for the Government

Sustainable Value Chain / Green Procurement

Our government agencies rely on a wide array of digital products and services to enhance public service delivery. However, digitalisation can significantly impact the environment if not managed sustainably. To address this, we have focused on refining our procurement processes to promote eco-friendly ICT practices and minimise our carbon footprint.

- Established energy efficiency criteria for PCs and peripherals supplied to public service employees to ensure that products procured are both effective and environmentally friendly
- Offered the option to extend the lifespan of selected PCs, encouraging public agencies to procure ICT hardware from manufacturers that meet sustainability standards
- Developed sustainability evaluation criteria for procuring services from Cloud Service Providers and data centre operators
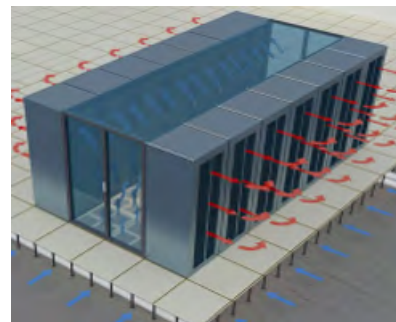
Green Hosting

In FY23, GovTech took significant strides in advancing sustainability within its data centres. By implementing innovative measures such as hot aisle/cold aisle arrangements, cold air containment, and automated airflow distribution solutions, we have significantly reduced energy consumption for cooling, improving overall energy efficiency. These practices, with operating temperatures in hosting suites increased to 26^{0}C, have led to 40% energy savings and an improved Power Usage Effectiveness (PUE) from around 1.7x to around 1.5x

Hot side

Cold Side

We also adopted modular UPS systems and lights-out operations, drastically improving energy utilisation and reducing unnecessary energy consumption.

Looking ahead, plans are in place for data centre consolidation, optimisation of rack utilisation, and the adoption of resilient setups in line with industry best practices for new Government Data Centres (GDC). GovTech is also exploring cutting-edge cooling technologies to support future AI workloads, demonstrating our commitment to reducing digital emissions and leading by example in sustainable ICT practices.

DIGITAL INNOVATION FOR SUSTAINABILITY

Green Outcomes Enabled for the Government

Digital Solutions and Products to Create Sustainable Impact

Electric Vehicle (EV) Data-Enabled Network (EDEN)

EDEN is a digital platform that helps the Land Transport Authority (LTA) with planning the phased national rollout of EV chargers, by tracking and analysing data points such as charger utilisation, EV adoption trajectory, and electric power availability and upgrading plans. For example, knowing a carpark's existing power capacity and the projected demand in the area helps LTA decide whether upgrades to the power infrastructure are necessary.

EDEN was built by GovTech's Smart City Technology Division to support the national programme for the electrification of vehicles under the SG Green Plan. LTA has set a target of 60,000 EV chargers in Singapore by 2030, and for every HDB town to be EV-ready across approximately 2,000 carparks by 2025.

BOARD OF DIRECTORS

(as of Aug 2024)

Mr Joseph LEONG

*Chairman
Permanent Secretary
(Smart Nation and Digital
Government Group)
Ministry of Digital
Development and
Information*

Mr Augustin LEE

*Deputy Chairman
Second Permanent
Secretary (Smart
Nation and Digital
Government Group)*

Mr CHNG Kai Fong

*Permanent Secretary
(Information and
Development)
Ministry of Digital
Development and
Information*

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

*Senior Technology
Advisor
World Bank Group*

Prof HO Teck Hua

*President
Nanyang
Technological
University*

Ms Melissa KHOO

*Chief Executive Officer
Central Provident
Fund Board*

Mr David KOH

*Chief Executive
Cyber Security
Agency of Singapore*

Ms Stacey LACY

*Chief of Staff
Yalari Limited*

Mr LEW Chuen Hong

*Chief Executive
Infocomm Media
Development Authority*

Mr LIEW Nam Soon

*ASEAN Regional
Managing Partner
Ernst & Young LLP*

Mr Shonn MILLS

*Managing Director,
Whitby Wood Mills*

Mr Noah PEPPER

Technology Investor

Ms Vaishali RASTOGI

*Head of Global
Technology, Media and
Telecommunications
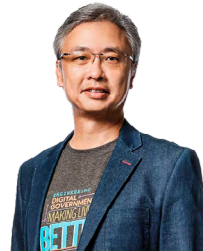Boston Consulting Group*

SENIOR LEADERSHIP TEAM

(as of Aug 2024)

Mr GOH Wei Boon
Chief Executive

Mr CHANG Sau Sheong
Chief Technology Officer and Deputy Chief Executive, Products

Mr Henry CHANG
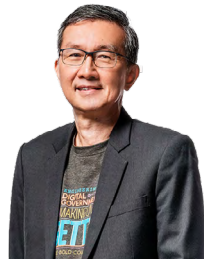*Deputy Chief Executive, Government Digital Transformation*

Mr Justiin ANG
Assistant Chief Executive, Cybersecurity

Mr Dominic CHAN
Chief Information Officer and Assistant Chief Executive, Technology Management Office

Mr TAN Bee Teck
Assistant Chief Executive, Government Digital Transformation (Central Administration & Social)
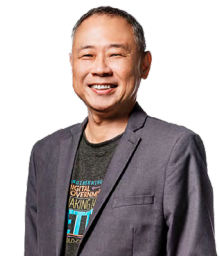
Mr TAN Eng Pheng
Assistant Chief Executive, Government Digital Transformation (Economic & National Development)

Mr Bernard TOH
Assistant Chief Executive, Strategy, Corporate & Governance

Mr D. N. PRASAD
Senior Director, People & Organisation Division

Mr CHAI Chin Loon
Senior Director, Cybersecurity (Engineering)

SENIOR LEADERSHIP TEAM

(as of Aug 2024)

Mr Vlastimil CHVOJKA
Senior Director, Government Digital Products (App Products)

Mr LIM Thian Chin
Senior Director, Digital Governance

Mr Kevin NG
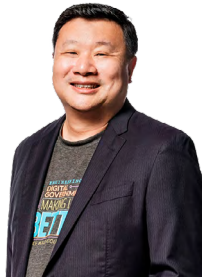*Senior Director, Government Digital Products (Core Engineering Products)*

Mr ONG Hong Joo
Senior Director, Cybersecurity (Cyber Defence Operations & Intelligence)

Mr Jason SEE
Senior Director, Education Cluster

Mr SING Khang Leng
Senior Director, Manpower Cluster

Mr Richard TAY
Senior Director, Government Productivity Engineering

Ms Lillian SHIEH
Head of Practice, Design Practice

Ms LIM Bee Kwan
Chief Executive Officer, Assurity Trusted Solutions

New appointees (not pictured):

Mr CHEN Kai Wei
Senior Director, Product Strategy Office and Head of Practice, Product Management Practice

MEMBERS OF BOARD COMMITTEES

MEMBERS OF SUBSIDIARY

Audit & Risk Committee (ARC) Committee

Mr Derrick GOH
Chairman

Ms Melissa KHOO
Member

Ms Stacey LACY
Member

People Matters & Renumeration Committee

Mr Joseph LEONG
Chairman

Mr GOH Wei Boon
Member

Mr Augustin LEE
Member

Mr CHNG Kai Fong
Member

Prof HO Teck Hua
Member

Finance & Investment Committee

Mr LIEW Nam Soon
Chairman

Mr GOH Wei Boon
Member

Mr Bojan BLECIC
Member

Mr David KOH
Member

Technology Advisory Committee

Ms Lesly GOH
Chairman

Mr Shonn MILLS
Member

Ms Vaishali RASTOGI
Member

Mr LEW Chuen Hong
Member

Mr Noah PEPPER
Member

Assurity Trusted Solutions Pte Ltd (Assurity) is a whollyowned 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 LIEW Nam Soon
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
Chief Information Officer
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
Head Intellectual Property, Technology & Data Group
WongPartnership LLP

Mr Bruce LIANG
Board Advisor
Assurity Trusted Solutions Pte Ltd

Ms TAN Khiaw Ngoh
Retired Partner
PricewaterhouseCoopers LLP

Mr WANG Jiun Haur
Director
Strategy, Policy, and Resourcing
Ministry of Digital Development and Information

Ms Shirley WONG
Managing Partner
TNF Ventures Pte Ltd

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