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Improving Lives, Supporting Businesses

Annual Report 2016/17

Bringing the Smart Nation Vision to Life

Singapore is one of the world's most connected cities. It is an outstanding place for people to live, work and play in. The vision is for Singapore to be a Smart Nation – a nation where people lead meaningful lives fuelled by technology.

At GovTech, we play a vital role in making the Smart Nation vision a reality. Digital transformation within the public sector is at the heart of what GovTech does. As we lend engineering support to smart nation projects and improve government digital services, we grow closer to achieving our goal. Ultimately, we seek to make life easier for everyone – our efforts impacting individuals, businesses and communities as a whole.













20 Senior Leadership Team

> 22 Members of Board Committees







Empowering Individuals

GovTech has enabled citizens to make informed decisions in their daily lives. Aside from the availability of open data and online services, we ensure that the digital realm is accessible to anyone, regardless of age.

Initiatives

- Creation of a one-stop portal to access government open data at data.gov.sg
- Island-wide Citizen Connect centres to give all citizens access to computers

Check dengue clusters on data.gov.sg

Grandson

I really enjoy school! Lessons in class are brought to life with technology and coding classes are always very fun and interesting!



11:00am Saturday



View and compare property prices on data.gov.sg



HOME

LEISURE

Sign up as a MyResponder volunteer



Report municipal feedback on OneService app



Pay Road Tax atCitizenConnect centre

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Supporting **Businesses**

Technology has the power to create seamless and efficient processes. At GovTech, we harness technology to support business needs, digitising transactions for a more convenient and secure experience.

Initiatives

- Simplifying process of applying government grants through the Business Grants Portal
- Improving convenience and enhancing privacy with CorpPass

CorpPass

UTUN

Welcome to CorpPass CorpPass will be required for business transactions with the

Use CorpPass to access these digital services today!

Register as a CorpPass Admin 👂

I am the Registered Officer + Help

Get started with CorpPass by your role

I am a User ,

I am the Admin ,

ti digital services (e.g. by CPSB an

digital services and new features available nov



Improving Lives

A Smart Nation is one where a future of better living is fuelled by technology. GovTech partners the industry, public and government agencies to roll out initiatives in key domains, making everyday lives smoother and easier.

Initiatives

- A new form of transportation for getting to work and back home with the Beeline app
- Bringing greater convenience to parents on school matters with Parents Gateway

Track daily steps with the Healthy 365 app



6:00pm Monday

Connected to Wireless@SG



Reporting Municipal Feedback through OneService@SG app



Book a seat on a private bus during peak hours with the Beeline app





HOME

LEISURE



C

Take kids to Bishan Park on Saturday



Pay kids' school excursion fees on Parents Gateway

Review healthcare records on HealthHub

Chairman's Message

NG Chee Khern Chairman

As we look to the next lap, we must continue to innovate and anticipate the needs of businesses and individuals, and we must continue to work hand-in-hand with citizens, industry and our stakeholders to deliver a Digital Government and Smart Nation for Singapore and all Singaporeans.

> gainst the backdrop of accelerating technological changes, GovTech was established on 1 Oct 2016 to lead the digital transformation of Singapore's public sector. The mandate calls for the harnessing of ICT and related engineering capabilities to build on the foundation laid for the country's Smart Nation vision.

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International recognition

Since the launch of the Smart Nation initiative in late 2014, we have made significant progress in rolling out digital applications and initiatives to improve the lives of citizens.

In the area of digital government, Singapore is well regarded internationally for its efforts to leverage technology to deliver public services, performing well in global infocomm rankings. In 2016, we topped the IMD World Digital Competitiveness Ranking, the Waseda University eGovernment ranking, and the World Economic Forum Global IT Report on Government e-Readiness (Government Usage & Social Impact). We have also gained recognition for developing award-winning products such as NECTAR, a cr platform-as-a-service for hosting government W e-services, which clinched the Red Hat Innovation in Award in 2017, and the Business Grants Portal, ca which won GovInsider's Best Adaptation Award al in 2016.

Progress in Smart Nation and Digital Government efforts

NECTAR and the Business Grants Portal are just two examples of projects that we have rolled out in our Smart Nation and Digital Government journey.

NECTAR, together with API Exchange (APEX) and Whole-of-Government Application Analytics (WOGAA), facilitates the sharing of data across whole of government and accelerates the development of digital services. The Business Grants Portal, together with the secure corporate digital identity CorpPass, provides greater convenience to businesses in their online transactions with Government. We have also expanded government digital services such as the personal data platform MyInfo to the private sector, where it is currently being piloted by the banking sector.

Beyond rolling out platforms and solutions, we have also been building our capabilities in technology and data science so that we will be able to take greater advantage of the opportunities of a Smart Nation. For example, we launched the Smart Nation Fellowship Programme where top data scientists, technologists and engineers from academia and the industry are appointed as Smart Nation Fellows to work on projects alongside GovTech's data scientists and product developers.

Even as we pursue our Smart Nation goals and opportunities, we are also mindful of the fact that the digital era brings with it a broad set of cybersecurity challenges. To address this, we have rolled out two-factor authentication to more than 2.6 million SingPass users and successfully implemented network separation between government systems and the Internet across 100 agencies to ensure that cyber threats are kept at bay.

The importance of collaboration and cocreation

worth of ICT tenders in projects spanning data analytics, infrastructure and robotics

While GovTech has been stepping up our efforts in building platforms and solutions, developing capabilities and strengthening cybersecurity, we also recognise that we cannot achieve the goals of Smart Nation and Digital Government on our own. Collaboration and co-creation will continue to be a key success factor on this journey.

Co-creation and crowd-sourcing were instrumental in the development of initiatives such as TechKaki, TechChatSG and eCitizen Ideas!. We also worked with GrabShuttle to introduce a transport solution powered by our Beeline platform, using analytics to help commuters get to their intended destination directly without multiple transfers.

Our partnership with industry will continue. In FY2017, we will be calling for over 2.4 billion worth of ICT tenders to work with the industry in projects spanning data analytics, infrastructure and robotics. Partnerships have also been forged with Institutes of Higher Learning to provide students with opportunities to work on real-world tech problems through internships and other platforms, and to train 10,000 public officers in data science over the next five years.

A more integrated and responsive approach with SNDGG

Going forward, the formation of the Smart Nation Digital Government Group (SNDGG) under the Prime Minister's Office on 1 May 2017 marks yet another step forward in Singapore's Smart Nation journey.

SNDGG, which comprises GovTech and the newlycreated Smart Nation and Digital Government Office, was set up to ensure a more integrated and responsive approach by the public sector to developing Singapore's Smart Nation and Digital Government strategy and delivering key Smart Nation initiatives.

GovTech is the lead implementing agency of SNDGG with oversight of the digital government aspect of

Chairman's Message

Smart Nation. We will also be working with other public agencies on selected digital services and Smart Nation projects.

In line with the goals of SNDGG, our key priorities are, firstly, to build key platforms and solutions (National Strategic Projects) to support the Smart Nation. These include the Smart Nation Sensor Platform which will enable agencies to collect, analyse, and share data from sensors that are deployed island wide; Moments of Life, a platform that anticipates the government services that citizens will require based on significant stages of their lives; a National Digital Identity; an e-Payment System; and Smart Urban Mobility, a project to leverage data and digital technologies, including artificial intelligence and autonomous vehicles, to further enhance the public transport commute.

Secondly, we want to focus on developing and delivering secure digital services and applied technologies. Examples include the Parking.SG app and Citizen 360, which are slated to be rolled out in FY2017.

Thirdly, we will develop standards, guidelines and policies for data sharing, cloud hosting, digital services, Internet of Things (IoT), cybersecurity, critical systems resilience and a next-generation government security operations centre. These standards will help enhance interoperability in the Smart Nation technology ecosystem, improve visibility into interconnected systems and enhance the user experience in the use of Smart Nation services.

Our fourth area of focus is to build deep technology capabilities and establish ourselves as a leading centre for ICT and related engineering for the Singapore Government. In line with this, we are looking to grow six areas of expertise through our Centres of Excellence – Application Development, Cybersecurity, Data Science, Government ICT infrastructure, Geospatial Technology, and Sensors and IoT. For example, the Data Science Capability Centre enables GovTech and other public agencies to formulate effective policies and deliver citizen-centric services through data-driven insights and decision-making; while the Sensors and IoT Capability Centre looks into the design and implementation of a whole-of-government IoT infrastructure that is built on the larger Smart Nation Platform.

Conclusion

FY2017 will be an exciting one as we embark on these key initiatives and push forward with the building of enabling platforms for Smart Nation and Digital Government.

To succeed in these efforts, we must be agile, be bold and embrace the spirit of collaboration.

I am happy to see these traits embodied in our stakeholders and staff. This has enabled us to come as far as we have, and for all the hard work and support that all of you have put in, I would like to express my deepest thanks and appreciation.

As we look to the next lap, we must continue to innovate and anticipate the needs of businesses and individuals, and we must continue to work hand-in-hand with citizens, industry and our stakeholders to deliver a Digital Government and Smart Nation for Singapore and all Singaporeans.

NG Chee Khern Chairman, GovTech

Statistics

Singapore's performance in Digital Government Rankings

Publication Year	FY12	FY13	FY14	FY15	FY16
(a) United Nations eGov Survey (released biennially)					
(i) Development Index	10 th	No	3 rd	No	4 th
(ii) e-Participation Index	3 rd	Report	10^{th}	report	8 th
(b) Waseda University eGov Ranking (released annually)					
	1 st	1 st	2 nd	1 st	1 st
(c) World Economic Forum Global IT Report (released annually)					
(i) Government Usage Sub-Index	2 nd	1 st	1 st	1 st	1 st
(ii) Social Impact Sub-Index	3 rd	1 st	1 st	1 st	1 st

Waseda University eGov Ranking FY2016



World Economic Forum Global IT Report FY2016







United Nations eGov Survey FY2016

Development Index:



e-Participation Index:



Statistics

Annual e-Government Perception Survey (Citizen) Conducted in 2016

Background

The e-Government Customer Perception Survey is conducted annually by the Ministry of Finance and the Government Technology Agency of Singapore (GovTech) to assess the level of receptivity towards key e-government initiatives used; and to identify areas for further improvement on the electronic services (e-services) used by the general public.

The survey was conducted from June to July 2016 for the reporting period of FY2015 (i.e. 1 April 2015 to 31 March 2016).

Research Methodology

1,200 🌡

respondents, comprising representatives of the total demographic population above the age of 19, were surveyed.

Survey Results



Annual e-Government Perception Survey (Business) Conducted in 2016

Background

The e-Government Perception Survey on Businesses is conducted annually by the Ministry of Finance and the Government Technology Agency of Singapore (GovTech) to assess the level of receptivity towards key e-government initiatives and to identify areas for further improvement on the electronic services (e-services) used by the business community.

The survey was conducted from June to July 2016 for the reporting period of FY2015 (i.e. 1 April 2015 to 31 March 2016).

Research Methodology

1,601 businesses, representative

of the following Singapore's industry sectors were surveyed.

Survey Results



Highlights

Sep 2016



15 September

CorpPass launched as the digital ID for online government digital services transactions

The introduction of CorpPass as the required ID for businesses to log into government digital services is for greater personal and business data protection. More than 130 digital services managed by about 50 agencies will be onboard by Q2 2017, allowing better business control and greater convenience.





1 October

Delivering quality IT systems and services with Domain-Functional-Specialist 2.0

GovTech embarked on Domain-Functional-Specialist 2.0, a training roadmap aimed at enhancing the capabilities of cluster officers in IT service delivery in order to raise the bar in building quality IT systems and services for partner agencies. DFS 2.0 strategies include deepening of domain IT leadership; centralisation of IT planning, design, solutioning and procurement; and standardisation of products, systems and services.



11 October

Business Grants Portal wins award for agile development

GovTech won GovInsider's Best Adaptation Award for the Business Grants Portal which helps businesses in their search for the right grants. The team was recognised for their use of agile development to adapt to changes in policies and user requirements.



7 October

GovTech launched to realise Smart Nation possibilities

GovTech was officially launched as the new public agency tasked with realising Smart Nation possibilities by growing deep technical capabilities for the Singapore Government and partnering other agencies to optimise the delivery of Smart Nation services and projects.

15 October

BioScreen strengthens visitor verification at checkpoints

Thumbprints of all visitors arriving and departing at Singapore's checkpoints are now captured using a new biometrics screening system BioScreen to provide more accurate identity verification. Developed by the Immigration and Checkpoints Authority (ICA) and GovTech, BioScreen complements ICA's existing clearance system i-Borders for more robust visitor screening.



18 October

Inter-agency collaboration gets a boost with One Public Service Workplace

Public Service Division and GovTech launched a pilot of Workplace by Facebook to enhance communication and collaboration across different public agencies. The pilot involved 5,300 public officers from 15 agencies. The subsequent rollout of the platform to all 145,000 public officers was completed by end-August 2017.



19 October

GovTech wins Red Hat Innovation Award for NECTAR

GovTech won the 2016 Red Hat Innovation Award for its development of NECTAR, a platform-as-a-service for hosting government e-services. NECTAR, together with APEX (API Exchange), provides the central infrastructure for agencies to deliver citizen-centric services without having to worry about the underlying technologies.

21 October

Raising public sector cybersecurity awareness at Cyber Safe Cyber Ready

More than 600 public officers attended the inaugural Cyber Safe Cyber Ready seminar and exhibition, which was organised as part of an integrated plan to raise the awareness and baseline knowledge of public-sector employees regarding cyber security matters.



Nov 2016



11 November

Data science sleuths get to the bottom of Circle Line train disruptions

Using data analytics, GovTech's data scientists worked with officers from Land Transport Authority, Defence Science and Technology Agency and SMRT to pin down a "rogue train" which was interfering with communications, leading to disruptions in train services on the Circle Line.



24 November

Demonstrating workplace inclusivity at Hive

Social and Family Development Minister Tan Chuan-Jin visited Hive as part of the SG Enable team to understand how GovTech promotes workplace inclusivity and augments workspaces to cater to colleagues with special needs.

Highlights

Dec 2016

12 December

Singapore Prison Service eliminates manual tracking with NFC Attendance System

Singapore Prison Service and GovTech are trialling the use of Near Field Communications (NFC) to track inmates' attendance at rehabilitation programmes. The NFC readers and sensors, which are embedded in the inmates' wrist straps, eliminates the need for manual tracking by Prison staff.



15 December

Virtual Singapore unleashes new 3D possibilities for public agencies

A major milestone for Virtual Singapore was achieved with the successful integration of 3D city models for public agencies. This allows the agencies to explore specific use cases with 3D spatial requirements such as mapping drone flight paths and estate planning.



9 January

Singapore Judiciary launches technology blueprint for Courts of the Future

GovTech worked with the Singapore Judiciary to launch a five-year technology blueprint which charts the course for "Courts of the Future". Unveiling the blueprint at the opening of the Legal Year 2017, the Chief Justice also announced the formation of a unified One Judiciary IT Steering Committee.

28 January

BIKES automates checkpoint clearance for motorcyclists

Immigration clearance of motorcyclists at the Woodlands and Tuas checkpoints has been automated with the Biometric Identification of Motorbikers (BIKES) system developed by Immigration and Checkpoints Authority and GovTech. BIKES makes use of fingerprint matching and human detection technologies to accurately authenticate a traveller's identity at the point of entry and exit.



3 February

Promoting a data-driven culture through Data Visualisation Video Challenge

The inaugural National Data Visualisation Video Challenge for tertiary students was organised as part of a series of activities to promote a data-driven culture and showcase how open data can benefit everyone.

10 February

Record turnout for GovTech's first PSI Seminar

More than 400 public officers from 64 agencies attended the first Public Sector Infocomm (PSI) Seminar organised by GovTech. The seminar is held twice a year to provide officers with updates on tech developments related to the public sector.



Warrowwarrowarrowskillering

13 February

Exposing students to realworld tech problems

300 students from Institutes of Higher Learning (IHLs) will get to work on real-world tech problems through internships and other platforms under Memorandums of Understanding and Memorandums of Intent signed by GovTech and eight IHLs.

Mar 2017



March

2.6 million SingPass users now 2FA-ready

SingPass crossed a significant milestone when 2.6 million users were enabled for two-factor authentication (2FA), ensuring better protection of personal data and helping to create a safer cyberspace.



1 March

Championing a more secure working environment in the public sector

A Cyber Awareness Education Campaign was launched in tandem with the Government's Internet Surfing Separation policy to promote a culture of cybersecurity in the public sector working environment.

2 March

Grab leverages GovTech's Beeline to launch on-demand shuttle services

Grab worked with GovTech to launch a beta shuttle bus app that helps to transport larger groups of commuters affordably from door to door. The GrabShuttle app is powered by Beeline, an open smart mobility platform developed by GovTech in collaboration with the Land Transport Authority.



20 March

Accelerating Smart Nation efforts with re-organisation of GovTech under PMO

The Singapore Government announced that GovTech, the Smart Nation Programme Office and relevant departments from the Ministry of Finance and Ministry of Communications and Information will come together from 1 May to form the Smart Nation and Digital Government Group (SNDGG), which will come under the Prime Minister's Office (PMO). GovTech will be the implementing agency for SNDGG and will work on key Smart Nation projects.

27 March

Enhancing support for teaching, learning and assessment with SSOE 2

Some 545,000 users including all teachers, students and school administration staff are set to benefit from the Schools Standard Operating Environment (SSOE) 2, with the award of an open tender by the Ministry of Education and GovTech. The SSOE 2 infrastructure will provide better support for schools' teaching, learning and assessment needs.

29 March

GovTech and NUS team up to boost public sector data science capabilities

A Memorandum of Intent was signed by GovTech and the National University of Singapore to train 10,000 public officers in data science over five years and share project knowledge to facilitate the co-creation of solutions.

Board of Directors

Mr NG Chee Khern
 Chairman
 Permanent Secretary
 Smart Nation and
 Digital Government



Mr TAN Kok Yam Deputy Secretary Smart Nation and Digital Government

2

3 Prof Freddy BOEY

Deputy President and Provost Nanyang Technological University Mr Peter HO (L) Chief Executive HOPE Technik Pte Ltd

5

Ms Mariam JAAFAR (R) Partner and Managing Director (Singapore) The Boston Consulting Group Singapore

Mr Alexander KLEINBERG Managing Director Exchange (MoPub), Asia-Pacific / Japan – Twitter Inc

6



Prof Annie KOH

7

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Vice President Office of Business Development, Professor of Finance (Practice) Singapore Management University





9 •••••• **Dr Bruno LANVIN** Executive Director Global Indices –

INSEAD

Deputy Secretary (Technology)

Mr David KOH

Ministry of Defence; & Chief Executive, Cyber Security Agency of Singapore



10 **Ms Jacqueline POH** Chief Executive Government Technology Agency



11 Mr Matt QUINLAN (L) Chairman Deep Labs Inc

12

Mr Muthukrishnan RAMASWAMI (R) President Singapore Exchange Ltd



13 **Mr TAN Kiat How** Chief Executive Officer Info-communications Media Development Authority



14

Mr TAN Peng Yam Chief Executive Defence Science and Technology Agency



Senior Leadership Team

1

Ms Jacqueline POH *Chief Executive*

2

Mr CHAN Cheow Hoe

Deputy Chief Executive/ Government Chief Information Officer

3 Mr CHAI Chin Loon Senior Director

Cyber Security Group

4

Ms Evangeline CHUA Chief People Officer

People & Organisation Group

5 Ms Lena GOH

Chief Marketing and Communications Officer Communications & Marketing Group

6 Mr Vincent KOR

General Counsel Legal

7

Mr KWOK Quek Sin

Director Government Digital Services (Product Management)

8

Ms LEE Kai Nee

Chief Financial Officer Finance, Investment & Procurement Group



Image: Second Second

Senior Director Government Infrastructure Group

10

Mr Mark LIM Director

Government Digital Services (Product Design & Development)

11 Mr LIU Feng-Yuan

Director Government Digital Services (Data Science)

12

Ms ONG Seok Leng

Senior Director Governance Group

13

Ms Dorcas TAN *Director* Strategic Planning & International

Mr TAN Eng Pheng Senior Director

Clusters Group

15

Dr TAN Guan Hong

Senior Director Smart Nation Systems & Solutions



Members of Board Committees

Audit & Risk Committee (AC):

Mr Muthukrishnan RAMASWAMI *Chairman* **Prof Freddy BOEY** *Member* **Mr David KOH** *Member*

Mr LEE Ah Boon Co-opted Member

Finance & Investment Committee (FIC)

Prof Annie KOH *Chairman* **Ms Jacqueline POH**

Mr Matt QUINLAN

Mr Peter HO

Mr TAN Kok Yam

People Matters & Rewards Committee (PMRC)

Mr NG Chee Khern Chairman Mr TAN Kiat How

Mr Alex KLEINBERG

Ms Mariam JAAFAR

Ms Jacqueline POH

Subsidiary

Assurity Trusted Solutions Pte Ltd ("Assurity") is a whollyowned subsidiary of the Government Technology Agency (GovTech*). It was incorporated to operate the National Authentication Framework (NAF).

The NAF is a project to improve the security of consumers performing online transactions. It is supported by the Monetary Authority of Singapore and respective regulators, such as the Ministry of Finance and the Ministry of Health. The NAF is a part of GovTech's vision of "An Intelligent Nation 2015 (iN2015) Masterplan" to develop a secure and trusted infocomm infrastructure. This is to facilitate the delivery of safe online services offered by the public and private sectors. The NAF is one of the key initiatives of the Infocomm Security Masterplan and National Trust Framework.

Robert CHEW
 (From 1 June 2016)
 Chairman
 Assurity Trusted
 Solutions Pte Ltd



Charles FAN Chief Executive Officer Assurity Trusted Solutions Pte Ltd





Ceddie CHAU Board Advisor Assurity Trusted Solutions



Deborah LEE
Executive Vice-President,
Corporate Development
Singapore Press Holdings

Bruce LIANG Chief Executive Officer Integrated Health Information Systems Chief Information Officer

Ministry of Health



Jacqueline POH
 Chief Executive
 Government Technology
 Agency



Shirley WONG (From 15 March 2017) Managing Partner TNF Ventures Pte Ltd

TAN Chee Hau (From 11 July 2016) Director, Planning and Prioritisation Smart Nation and Digital Government Office





TEO Chin Hock Deputy Chief Executive (Strategic Development) Defence Science & Technology Agency

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Newly joined Robert CHEW – 1 Jun 2016 TAN Chee Hau – 11 Jul 2016 Shirley WONG – 15 Mar 2017

Stepped down Selwyn SEAN – 11 Jul 2016



Government Technology Agency

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