



A PUBLICATION OF THE
SINGAPORE ARMED FORCES



POINTER MONOGRAPH NO.15


FIGHTING THE COVID-19 PANDEMIC
LEADERSHIP REFLECTIONS FROM THE SAF

FIGHTING THE COVID-19 PANDEMIC

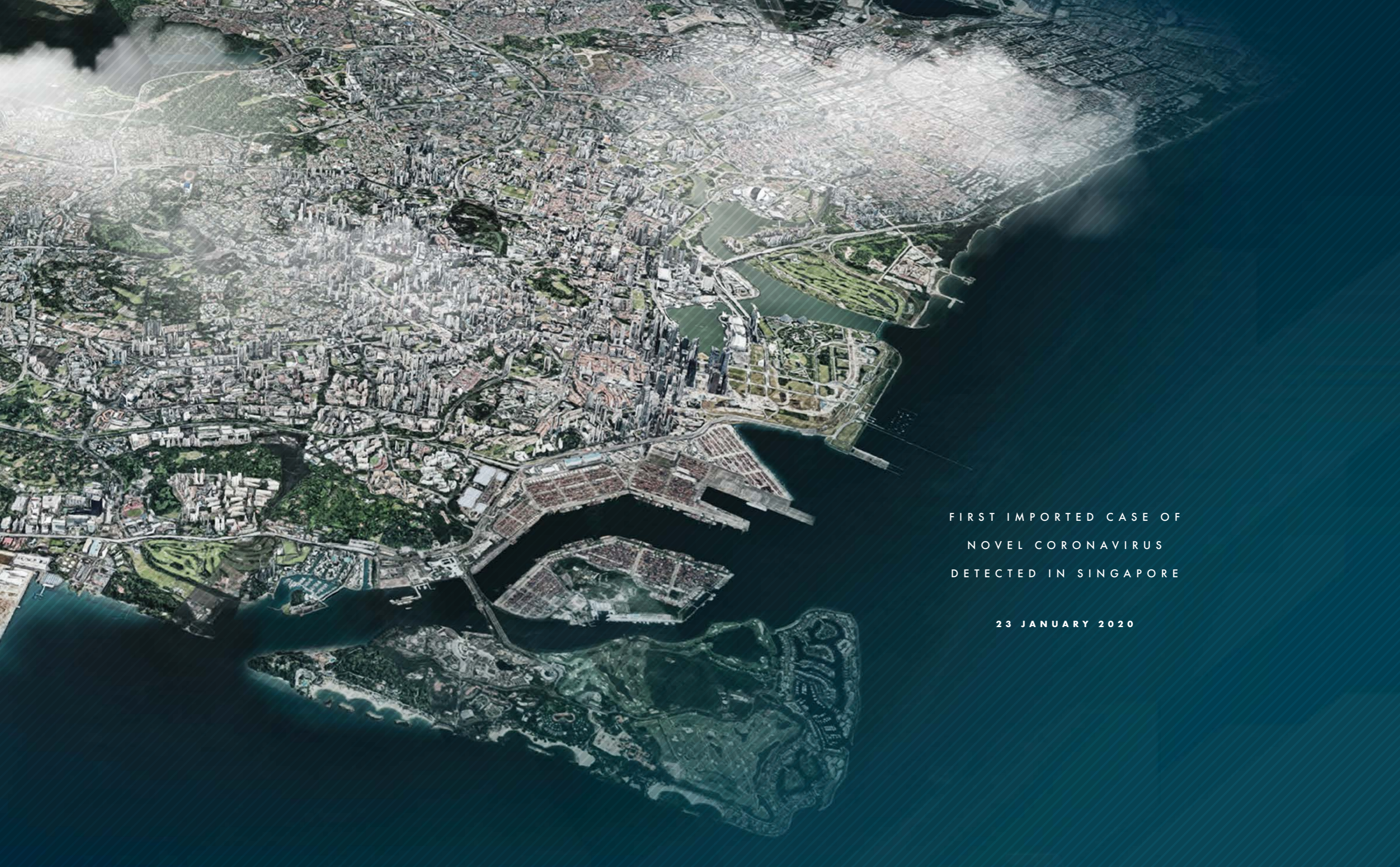
LEADERSHIP REFLECTIONS

FROM THE SAF



An aerial photograph of a coastal city, likely San Francisco, showing a large stadium (SAP Center) and surrounding urban and green areas. The image is overlaid with a semi-transparent blue gradient.

**This monograph is dedicated to
all SAF servicemen and servicewomen –
you have made a difference in the
nation's fight against the
COVID-19 pandemic.**



FIRST IMPORTED CASE OF
NOVEL CORONAVIRUS
DETECTED IN SINGAPORE

23 JANUARY 2020

PUBLISHED BY

SAFTI Military Institute
500 Upper Jurong Road
Singapore 638364

ISBN: 978-981-18-4958-9 (Hardcover)

ISBN: 978-981-18-4124-8 (Softcover)

ISBN: 978-981-18-4125-5 (e-Pub)

© **COPYRIGHT JULY 2022**

SAFTI MILITARY INSTITUTE, SINGAPORE
ALL RIGHTS RESERVED

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher.

Every effort has been made to trace all sources and copyright holders of news articles, figures and information in this monograph before publication. If any have been inadvertently overlooked, the SAFTI Military Institute will ensure that full credit is given at the earliest opportunity.

THE SINGAPORE ARMED FORCES

PRESENTS

FIGHTING THE COVID-19 PANDEMIC
LEADERSHIP
REFLECTIONS
FROM THE SAF



THE CITY CAME TO A STANDSTILL -
A SINGAPORE NEVER
BEFORE EXPERIENCED

7 APRIL 2020





C O N T E N T S

**FOREWORD BY THE MINISTER FOR DEFENCE
DR NG ENG HEN** 12

**MESSAGE BY THE CHIEF OF DEFENCE FORCE
LIEUTENANT-GENERAL MELVYN ONG SU KIAT** 16

**TIMELINE OF THE SAF'S JOURNEY
THROUGH THE COVID-19 PANDEMIC** 20

**CHAPTER 1
THE VIRUS HITS** 32

**CHAPTER 2
ALL HANDS ON DECK** 44

**CHAPTER 3
THE POWER OF TECH** 58

**CHAPTER 4
ADAPTING ON THE GO** 72

**CHAPTER 5
STAYING AHEAD** 86

**CHAPTER 6
HOME CARE BOUND** 100

**CHAPTER 7
BUSINESS AS USUAL** 118

**CHAPTER 8
COMMAND IN A COMPLEX ENVIRONMENT** 132

**CHAPTER 9
MANY STEPS IN ONE BIG STRIDE** 148

**CHAPTER 10
AGILE RESPONSES** 160

EDITOR'S AFTERNOTE 176

LEADERSHIP REFLECTIONS FROM THE EDGE

DIRECTOR OF JOINT OPERATIONS 180

COMMANDER JOINT TASK FORCE (ASSURANCE) 186

**COMMANDER COMBAT SERVICE
SUPPORT COMMAND** 192

CHIEF OF MEDICAL CORPS 200

ABBREVIATIONS 210

ACKNOWLEDGEMENTS 214



FOREWORD BY THE MINISTER FOR DEFENCE

The battle against a biological enemy during the COVID-19 pandemic in Singapore provided valuable lessons and experience for MINDEF and the SAF.

First, it gave insights on how bioterrorism might affect our country and the region. Disruption of supply lines for essential goods and services coupled with psychological fear, polarisation and divisiveness within our population creates fertile ground to sow discord and disunity. For the SAF, our response in such circumstances must ensure the continuity of goods and services, as well as social cohesion. These mission objectives are not apparent in a civilian crisis for our Army, Navy or Air Force, but nevertheless essential to maintain a well-functioning military whose NS soldiers, sailors and airmen are drawn from the general population. The SAF has therefore already incorporated them by learning from this pandemic.

Second, it validated some capabilities of the SAF. These include stabilising COVID-19 outbreaks in migrant worker dormitories, setting up Community Care and Recovery Facilities, running contact tracing and medical logistics operations, developing command and control systems, and starting the national home recovery programme. These efforts helped save lives, prevented our healthcare system from being overwhelmed, and provided assurance to Singaporeans. Through these episodes, SAF commanders showed their ability to operate and help deliver key outcomes despite the “fog of war”, where knowledge is incomplete and goal-posts shift.

Third, MINDEF and the SAF scored highly in innovation, in our ability to come up with novel solutions to deal with pressing problems. Scientists and engineers from DSO National Laboratories (DSO) and Defence Science and Technology Agency (DSTA) developed and operationalised Forward Deployment Laboratories for Polymerase Chain Reaction (PCR) testing. DSO and HQ Medical Corps also partnered the Agency for Science, Technology and Research in developing the RESOLUTE Direct-PCR diagnostic test kit, which halved testing time from three hours to within 90 minutes. IT professionals from DSTA, ST Engineering, and NCS worked with the SAF round the clock to deliver command and control systems to manage dormitory operations, contact tracing, COVID-19 testing and food supply chain risk management. Army and DSTA engineers built Mobile Swab Stations that allowed for the swift deployment of swab teams to numerous dormitories, as well as Mobile Express Scanners which improved the efficiency of the swab operations.

Last but certainly not least, I was gratified that through it all, more than 6,000 personnel who were deployed across a wide range of operations displayed professionalism and service before self. Many went beyond the call of duty. Regulars, NSFs and NSmen risked their own health and their families to serve COVID-19 patients at the Singapore EXPO Community Care Facility. NSFs extended their full-time NS to support COVID-19 operations.

Even as they contributed to the fight against COVID-19, our people continued to maintain a high level of readiness to keep Singapore safe from external threats. We continued to deliver on our primary mission, kept our transformation on track, and ensured the health, safety and well-being of our people.

I would like to express my gratitude to the men and women of MINDEF, SAF, DSTA, DSO, MINDEF-related organisations and other civilian partner agencies who have given of their best during the COVID-19 pandemic. May these accounts inspire future generations as we seek to surmount every crisis that come our way.



Dr Ng Eng Hen
MINISTER FOR DEFENCE



*Dr Ng visiting
SAF personnel
deployed at
S11 Dormitory
@ Punggol on
9 April 2020.*



MESSAGE BY THE CHIEF OF DEFENCE FORCE

Men and women of the SAF,

The COVID-19 pandemic was a Black Swan that massively disrupted every aspect of our lives, at the personal, community and national levels. We all have our personal memories of the last two-and-a-half years of this difficult and unsettling time in all our lives. National safe management measures meant that we had to mostly work from home and our children had to do home-based learning. We could not see our relatives and friends for weeks on end, and we didn't go anywhere unless we needed groceries. Exploring our parks and park connectors became a pastime as international travel ground to a halt.

It would not surprise anyone to know that my core memories of COVID-19 are of how it disrupted SAF training and operations, and the leadership actions it took to maintain a semblance of business-as-usual in the SAF while also supporting the Whole-of-Government (WoG) effort to deal with the pandemic. We had to minimise the risk of infection without compromising our ability to carry out our core mission of protecting our land, air, sea borders and cyber space. At the same time, the SAF also had to stand up a number of Task Forces to oversee multiple lines of operations. We could not fail on either front.

This monograph captures some leadership perspectives which explain how the SAF, the Task Forces, and commanders could adapt and respond to the challenges on both fronts in an operating environment that was volatile, uncertain, complex, ambiguous and disruptive (VUCA-D).

One of the things I remember best is how our commanders applied their skillsets to crisis management, whether in dealing with the dormitory crisis or the home recovery system as Singapore moved to living with endemic COVID-19. Commanders leveraged their DNA of systems thinking and discipline in executing operations, anchored on key leadership competencies. It affirmed our training in the SAF Battle Procedures, and showed how agile and effective they can be in complex situations when you integrate them with the SAF's action learning process to "learn on the go". The combination of systems thinking, disciplined command and control (C2) and the humility to always adapt and learn on the go is a powerful one.

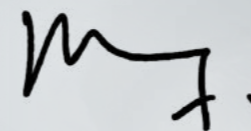
I also remember how our commanders recognised very early on that they did not "understand the enemy" fully and mission success also depended on how well they supported and worked with partners in the ministries, like Ministry of Manpower (MOM) and Ministry of Health (MOH). Humility and empathy are critical to success in a space where cause and effect are hard to ascertain. For many challenges that Singapore will face, we know the SAF is not the only tool in the toolbox, and we must continue to exercise this WoG muscle so that we can deal with the VUCA-D challenges that Singapore will invariably face in the future.

Another of my COVID-19 core memories is of how commanders and Task Forces worked in harmony with our Defence Technology Community colleagues to build technology solutions to the problems we faced. The mobile swab stations, the C2 systems to coordinate efforts

in MOM and MOH, and the data applications in contact tracing operations are just some examples of the ops-tech thinking that has permeated the SAF over the last two decades. They demonstrated how data-driven decision making was critical to our operations. The SAF must continue to improve our data literacy and develop structures to make better use of data in our day-to-day operations. SAF leaders must continue to develop their ability to exploit this.

The memory that will always stay with me about the time of COVID is of the unity of purpose and the mission-focused orientation of the men and women of the SAF throughout the entire period. Our soldiers, sailors and airmen – across all operations and training establishments – had to observe stringent cohorting and safe management measures so that the SAF could carry on with our operations and training. They did this at some cost to their personal well-being but they did not flinch, and our commanders carried this intent well to the last person on the ground.


I am proud of the men and women of the SAF for showing their mettle throughout the COVID-19 crisis. I hope that our commanders will think deeply about the leadership perspectives captured in this monograph and further develop the lessons we can learn from our COVID-19 experience. These leadership perspectives and lessons will serve us well when we confront the next crisis, whenever that may strike us. The SAF must never be found wanting.



Lieutenant-General

Melvyn Ong Su Kiat

CHIEF OF DEFENCE FORCE



LG Ong engaging soldiers involved in security operations.



TIMELINE OF THE SAF'S JOURNEY THROUGH THE COVID-19 PANDEMIC

RESPONDING SWIFTLY IN OUR TIME OF NEED

Dec 2019

31 DEC

- WHO China Country Office is informed of pneumonia cases of unknown aetiology detected in Wuhan City, Hubei Province of China.

Jan 2020

21 JAN

- DORSCON level is raised from Green to Yellow (Enhanced Preparedness).
- Multi-Ministry Task Force is set up to manage the COVID-19 pandemic.

20 JAN

- MINDEF issues medical advisories to service personnel.

30 JAN

- WHO declares the outbreak a "Public Health Emergency of International Concern".

23 JAN

- First case of imported novel coronavirus is detected in Singapore.

27 JAN

- Singaporeans are advised to defer non-essential travel to affected countries.
- Increase in measures to enhance screening of arrivals from affected countries.

26 JAN TO 9 APR

- Health Surveillance Task Force (HSTF) stands up to conduct call centre operations in support of MOH, for visitors from affected countries, and personnel working in the travel industry.

28 JAN TO 10 FEB

- HSTF conducts operations at Changi Airport in support of ICA for heightened border health screening of inbound travellers.

30 JAN TO 1 FEB

- Combat Service Support Task Force (CSSTF) stands up to conduct mass packing and distribution of 5.5 million surgical masks to all households in Singapore.

Feb 2020

4 FEB

- First case of community infection is detected.

7 FEB

- DORSCON level is raised to Orange. Announcement triggers panic buying at supermarkets.

8 FEB

- First case of infection is detected at a migrant worker dormitory. Patient is transferred to NCID.

10 FEB

- MOM orders migrant worker dormitory operators to step up cleaning and precautionary measures.

11 FEB

- WHO officially names the virus COVID-19.

21 FEB TO 5 APR

- HSTF conducts Stay-Home Notice (SHN) enforcement operations in support of ICA.

Mar 2020

11 MAR

- WHO declares COVID-19 a global pandemic.

16 MAR

- Malaysian government implements Movement Control Order. More than 10,000 Malaysian workers are affected.

18 MAR

- Singaporeans are advised to defer all overseas travel.

20 MAR

- TraceTogether digital system is implemented.

23 MAR

- Short-term pass holders are banned from entering Singapore.

24 MAR

- Safe Distancing Measures are introduced, and large group gatherings are suspended.

25 MAR

- All visitors entering Singapore are issued with 14-day SHN at dedicated facilities.

30 MAR

- First migrant worker dormitory cluster is identified at S11 Dormitory @ Punggol.

17 MAR TO 31 OCT

- HSTF conducts contact tracing operations in support of MOH.

18 MAR

- CSSTF sources for manpower and beds to establish temporary housing for affected Malaysian workers, in support of HDB, MCCY, MSF and MTI.

31 MAR

- Non-operations-essential In-Camp Training (ICT) are suspended. Operations-essential ICT continue to be conducted.
- CSSTF supports MTI to strengthen supply chain resilience.

SUPPORTING OUR HEALTHCARE SYSTEM

Apr 2020

2 APR

- COVID-19 cases in Singapore cross the 1,000 mark.

2 APR

- CSSTF supports NTUC Enterprise to establish additional distribution centres.

5 APR

- CSSTF delivers 5 million reusable masks to community centres islandwide.

6 APR

- Joint Task Force (Assurance) [JTF(A)] stands up in support of MOM, to contain the clusters in migrant worker dormitories.

7 APR

- Commencement of "Circuit Breaker" (CB).

7 APR

- BMT is suspended.
- Emergency Housing Task Force (EHTF) stands up to repurpose seven SAF camps as temporary housing for migrant workers.

10 APR

- Singapore EXPO and MAX Atria are identified as Community Care Facilities (CCFs).

14 APR

- Mask wearing in public is made mandatory.

21 APR

- Announcement of extension of CB.

22 APR

- COVID-19 cases in Singapore cross 10,000 mark.

10 APR

- First SAF Camp (Jurong Camp II) is ready for the temporary housing of migrant workers in essential services.
- First group of Forward Assurance and Support Team (FAST) personnel are deployed at six Purpose-Built Dormitories (PBDs) for migrant workers.
- SAF supports MINDEF-related entities and healthcare agencies to operationalise CCFs at various exhibition and convention centres.

22 APR

- FASTs are fully deployed at all 43 PBDs.

26 APR

- Medical Operations Task Force (MOTF) stands up in support of MOH, to provide comprehensive awareness of resource demands related to COVID-19.

30 APR

- SAF Combat Service Hospital units are deployed at Singapore EXPO CCF.

May 2020

6 MAY

- EHTF fully converts seven SAF camps, providing 7,000 beds as temporary housing for migrant workers in essential services.

7 MAY

- CSSTF rolls out Mobile Express Scanners at 38 sites islandwide.

13 MAY

- CSSTF rolls out Mobile Swab Stations to support swab operations at migrant worker dormitories.

26 MAY

- Conduct of BMT resumes.

Aug 2020

7 AUG

- Testing is completed for all migrant workers in dormitories.

9 AUG

- The first indoor NDP 2020 is successfully organised, augmented with outreach in the heartlands. Special tribute is paid to frontline workers.

17 TO 31 AUG

- The RSN participates in Rim of the Pacific Exercise (RIMPAC) 2020, the first overseas exercise for the RSN, since the pandemic began.

22 AUG

- FAST operations are handed over from JTF(A) to Assurance, Care and Engagement Group from MOM.

TRANSITING TO THE NEW NORMAL

Jun 2020

2 JUN

- Phase 1: Safe Re-opening.

19 JUN

- Phase 2: Safe Transition.

ENABLING BUSINESS AS USUAL

Jun 2021

- **22 JUN TO 7 JUL**
 - The RSN and the RSAF conduct integrated maritime operations as part of Ex Pacific Griffin.
- **29 JUN**
 - Announcement of COVID-19 vaccination requirement for pre-enlistees.
- **30 JUN**
 - 92% of SAF personnel are fully vaccinated with two doses of COVID-19 vaccine.
 - The Army's 3rd Generation Force is fully operational after capstone exercise in Mar 2021.

Jul 2021

- **1 JUL**
 - Announcement of rostered routine testing for SAF personnel and NSmen.
- **12 JUL**
 - Introduction of FIT@Home to facilitate fitness training for NSmen.
- **23 JUL TO 18 AUG**
 - In-person IPPT and ICT are suspended, and Fitness Conditioning Centres are closed.

- **22 JUL TO 18 AUG**
 - Phase 2: Heightened Alert is announced due to COVID-19 clusters detected at Jurong Fishery Port.

Apr 2021

- **1 APR**
 - NS Fitness Improvement Training (FIT) programme is rolled out.
- **21 TO 30 APR**
 - The RSN deploys MV Swift Rescue for search operations.
- **APR TO JUL**
 - The RSAF and the RSN support the delivery of COVID-19 aid to other countries.

May 2021

- **8 MAY**
 - The Straits Times reports TTSH COVID-19 cluster sparked by the Delta variant.
- **19 TO 22 MAY**
 - Military Medical Experts, Medics and COVID-19 Surveillance Officers support national swab operations held at Big Box Mall in Jurong.

VACCINATION TO PROTECT OUR PEOPLE

Nov 2020

- **4 NOV**
 - Pandemic-ready next generation RSAF Medical Centre opens at Tengah Air Base.

- **12 NOV**
 - Expert Committee is formed to make recommendations on COVID-19 vaccination strategy.

Dec 2020

- **14 DEC**
 - Announcement of COVID-19 vaccination plans.
- **21 DEC**
 - Arrival of COVID-19 vaccines in Singapore.

Jan 2021

- **14 JAN**
 - Vaccination drive commences with Minister for Defence, and Senior Minister of State for Defence receiving their vaccines at MINDEF Medical Centre.

- **28 DEC**
 - Phase 3: Re-opening.

Sep 2020

- **9 SEP**
 - Pre-departure Polymerase Chain Reaction (PCR) test requirement for travel to Singapore is announced.

Oct 2020

- **1 OCT**
 - MINDEF announces the progressive resumption of ICT and IPPT training, with Safe Management Measures (SMMs) and protocols in place.
- **7 OCT**
 - The RSAF resumes overseas training with a detachment in Darwin, Australia.
- **13 OCT**
 - No new cases are detected in migrant worker dormitories for the first time since Feb 2020.
- **27 OCT**
 - Antigen Rapid Testing is trialled for large-scale events in the SAF.

Aug 2021

21 AUG

- The SAF successfully organises NDP 2021 - the first live-virtual integration of parade and show.

26 AUG TO 10 SEP

- The RSAF deploys an A330-MRTT (Multi-Role Tanker Transport) aircraft to Qatar to assist with the Afghan evacuation.

15 SEP

- Home Recovery Programme becomes the default care management model.

13 SEP TO 21 OCT

- Ex Wallaby resumes in Shoalwater Bay training area in Queensland, Australia.

14 TO 25 SEP

- Ex Forging Sabre is conducted in Idaho, US, marking the inaugural participation of HQ Sense and Strike.

29 SEP TO 23 DEC

- Home Recovery Task Group (HRTG) stands up to support MOH for the COVID-19 home recovery programme.

Dec 2021

8 TO 10 DEC

- Decentralised small-scale OCS Commissioning Ceremonies resume, with guests invited to attend.

Feb 2022

JAN TO FEB

- The Omicron variant surges.

14 FEB

- New COVID-19 Treatment Facility opens for children and elderly at Singapore EXPO.

11 FEB TO 20 MAR

- The SAF deploys 100 soldiers to MOH call centre, to cope with the Omicron variant surge.

22 FEB

- The SAF deploys medical teams to SKH, NTFGH, KTPH, CGH, and TTSH to support healthcare workers.
- CEC and NSRCC are converted into CCF and Community Recovery Facility respectively.

Mar 2022

29 MAR

- National easing and streamlining of SMMs.

23 MAR

- The SAF achieves 99.7% fully vaccinated rate.

Apr 2022

26 APR

- DORSCON level lowers to Yellow.

TOWARDS LIVING WITH COVID-19

Sep 2021

8 SEP

- The first Vaccinated Travel Lane is launched.

13 SEP TO 15 OCT

- The SAF augments MOH's vaccination programme with Home Vaccination Teams.

Nov 2021

1 NOV

- Recover@SEA is established by the RSN.

13 NOV TO 31 DEC

- The SAF COVID-19 Medical Task Force is deployed at COVID-19 Treatment Facilities to support healthcare workers.





CHAPTER 1

**THE
VIRUS
HITS**

32

CHAPTER 2

**ALL
HANDS
ON DECK**

44

CHAPTER 3

**THE
POWER
OF TECH**

58

CHAPTER 4

**ADAPTING
ON THE GO**

72

CHAPTER 5

**STAYING
AHEAD**

86

CHAPTER 6

**HOME CARE
BOUND**

100

**THE
VIRUS
HITS**

It was January 2020, and the “novel coronavirus” had arrived in Singapore. Before long, the coronavirus disease 2019 (COVID-19), caused by the SARS-COV-2 virus. But the experts still had little understanding of this new threat. There was hope that the outbreak would be short lived, like the previous serious coronavirus outbreak SARS had been in 2003. That turned out to be a false hope. It soon became clear that COVID-19 was spreading fast across just about every country and posing a very grave public health threat across the world. It was a global pandemic.

In Singapore, as the nature and magnitude of the threat became clearer, Singaporeans had to adopt new habits to safeguard their health. Government organisations as well as those in the private and people sectors had to develop new processes and procedures to ensure that they could continue to function while keeping their people safe.

PRIORITIES

The mission was clear. The Singapore Armed Forces (SAF) had to remain operationally ready with no compromise to its ability to protect Singapore and Singaporeans even as it supported Whole-of-Government (WoG) efforts to fight COVID-19, all while protecting the health of every soldier, sailor,

and airman. The SAF had to be ready and able to take on new tasks in support of the national effort against the disease, all without letting up on its current operations and force-generation activities. The scale of the mission was daunting.

Fortunately, the SAF was not starting from a blank slate. The Joint Operations Department (JOD) team, led by Director of Joint Operations (DJO) BG David Neo, could draw on the research from local and foreign health agencies to quickly develop some understanding of the virus, even though there was still much that was uncertain at that time. The SAF could also draw on its experiences with SARS in 2003 and the H1N1 swine flu in 2009 to develop operational responses to this new virus.



Lessons learnt from the SARS experience in 2003 and established baseline pandemic preventive measures such as implementing cohorting practices and donning Personal Protective Equipment.
Source: Reuters/
Mr David Loh



The SAF was also fortunate to have many experienced officers in the Ops community who had run SAF operations during those outbreaks, and could draw upon their expertise. Moreover, the community had worked closely together on several operations recently, including the drone disruptions at Changi Airport and the maritime incursions off Tuas, and there was a strong sense of camaraderie.

So, the SAF was able to act decisively and quickly implement measures to stem the spread of COVID-19 among its personnel. JOD also worked closely together with the

Services' Operations Departments to roll out measures across the SAF. Safe management measures (SMM), such as operating in smaller groups, taking temperatures regularly, and practising more rigorous hygiene habits, were quickly rolled out even as more preparations were being made.

A top priority was to ensure that the SAF could continue to carry out its core defence and security mission effectively. Cohorting was implemented at the start, so that the identified Critical Ops Units (COUs) could continue to stand ready to defend Singapore. The growing COVID-19 numbers, however,

Temperature checking regime implemented even while doctors and scientists were still trying to figure out the nature of the COVID-19 virus.
Source: MINDEF



RSAF personnel on an air surveillance mission using the Heron 1 Unmanned Aerial Vehicle.
Source: MINDEF



Soldiers conducting homeland security operations.
Source: MINDEF

forced the SAF to adopt tighter measures. A particularly important one was to impose a pre-deployment isolation period to ensure that the COUs would be free of COVID-19. While this gave the SAF the assurance that operations could continue, it was onerous for the service members involved.

Once the posture for COUs was determined, the Ops community had to adjust the pace and modality of training that was less time-sensitive, especially after the nationwide “Circuit Breaker” was imposed. JOD coordinated with the Services to categorise the different activities across the SAF, and scaled back on as many less essential activities as possible.

At Joint Staff Conferences, Chief of Defence Force (CDF) LG Melvyn Ong and the Service Chiefs deliberated extensively to make hard decisions, such as whether to suspend In-Camp Training (ICT) in alignment with national workplace measures, and whether it was necessary to take the radical step of developing home-based learning modules for Basic Military Training (BMT) during the “Circuit Breaker”.

These decisions were taken with an eye on the trade-offs: the effectiveness of training would be affected, but decisive and calibrated steps were necessary if the SAF was to be able to remain operationally ready without compromising the health of its personnel.

RSN personnel carrying out maritime security operations.
Source: MINDEF

ADAPTING

Even as these measures were being developed and implemented quickly, the SAF continued to draw on information coming in from its own units and partners in other organisations in Singapore to adjust its policies. As the Ministry of Health (MOH) learnt more about COVID-19 and updated its guidance, the SAF made the necessary adjustments.

The SAF also tapped on the experience of international partners. BG Neo held regular video conferences with counterparts such as LG John Frewen, Commander of Australia's Defence COVID-19 Task Force, and MG Tiopan Aritonang, Director of Operations in the Indonesian Armed Forces Joint Staff, to share best practices

and learn from one another. As these armed forces were, like the SAF, constantly having to adapt to COVID-19, learning from their experiences helped the SAF in developing useful and sensible ways to adapt training policies.

With the early successes in dealing with COVID-19 within the military and a growing understanding of the virus, the SAF was able to make two key adjustments. First, it quickly moved to exploit data analytics to track the transmission and spread of COVID-19 within the SAF and also to support the work of the various SAF Task Forces which had been set up to combat COVID-19. With rigorous analysis of the available data, the SAF became more targeted and effective in contact tracing, which helped to slow the spread.



BG David Neo speaking to Director General of Health Services LG Dato' Pahlawan (Dr) Md Amin bin Muslan and Deputy Inspector General BG Hj Anas bin Hj Hassan from the Malaysian Armed Forces (on screen).
Source: MINDEF

Second, the SAF exploited technology and tapped on the Defence Technology Community (DTC) as a force multiplier. One of the first phone calls JOD received during the pandemic was from Ms Ngiam Le Na, Deputy Chief Executive (Operations) of Defence Science and Technology Agency (DSTA), offering the DTC's assistance. Within hours, a team of DSTA engineers and DSO National Laboratories (DSO) scientists joined the Ministry of Defence (MINDEF)-SAF Operations Centre, to solve problems alongside SAF officers.

The close partnership of Ops and Tech communities, with DTC engineers and scientists working in lockstep with the SAF as an integral part of the team, would

characterise the SAF's approach in every WoG Task Force that it was asked to lead or contribute to. This close ops-tech partnership enabled the SAF to exploit relevant technology to achieve better operational outcomes in its fight against COVID-19.

A quick and early payoff came with the roll-out of the pulse oximeter once it was established that there was a correlation between the blood oxygen level and severity of COVID-19. As this humble device could give an early indicator that a patient's condition was at risk of deteriorating rapidly, it enabled the SAF to take quick medical action to keep its people safe.

DSTA engineer providing support to SAF personnel who assisted MOH in contact tracing.
Source: MINDEF

OVERCOMING CHALLENGES

While the SAF found ways and means to adapt and remain effective, the battle against the virus was not an easy one because of the virus's ever-changing nature. But BG Neo was confident that the SAF, with its ability to sense-make and stay nimble, would have an edge against this constantly evolving "enemy".

In combat, the SAF is trained to fight against an enemy that moves quickly and is constantly evolving, and the COVID-19 virus is no different.

BG David Neo DJO

Operating amidst significant uncertainty, the SAF developed new plans and measures anchored on data and empirical evidence to stay effective; it was in the military's DNA to always be prepared. Many ground commanders ran Table-top Exercises to stress-test contingency plans against a range of COVID-19 scenarios. This enabled the SAF to act quickly and decisively whenever positive cases emerged among service personnel, sometimes even before the health agencies had decided on what course of action to take. In fact, when the first case emerged in the SAF in February 2020, JOD was ready to respond with measures developed by the SAF to mitigate the spread of the disease, which went beyond the national guidance at the time.



SAF personnel in COUs, like SSG Loh Yong Han, 2IC of an Explosive Ordnance Disposal Section, isolated in camp before performing their operational duties.

Source: MINDEF

Equally, if not more important, was the commitment of our soldiers, sailors, and airmen. Right from the beginning, the SAF leadership had emphasised the importance of good communication along the command chain and the need to keep every serviceman and servicewoman up

to date on what the SAF was doing in its fight against COVID-19. This not only helped to keep all our people engaged but also highlighted to them the important roles that they played, both individually and collectively.

There was also a culture shift, as the SAF encouraged our people to develop socially responsible behaviours, such as seeking medical attention early and staying at home for suspected illnesses.

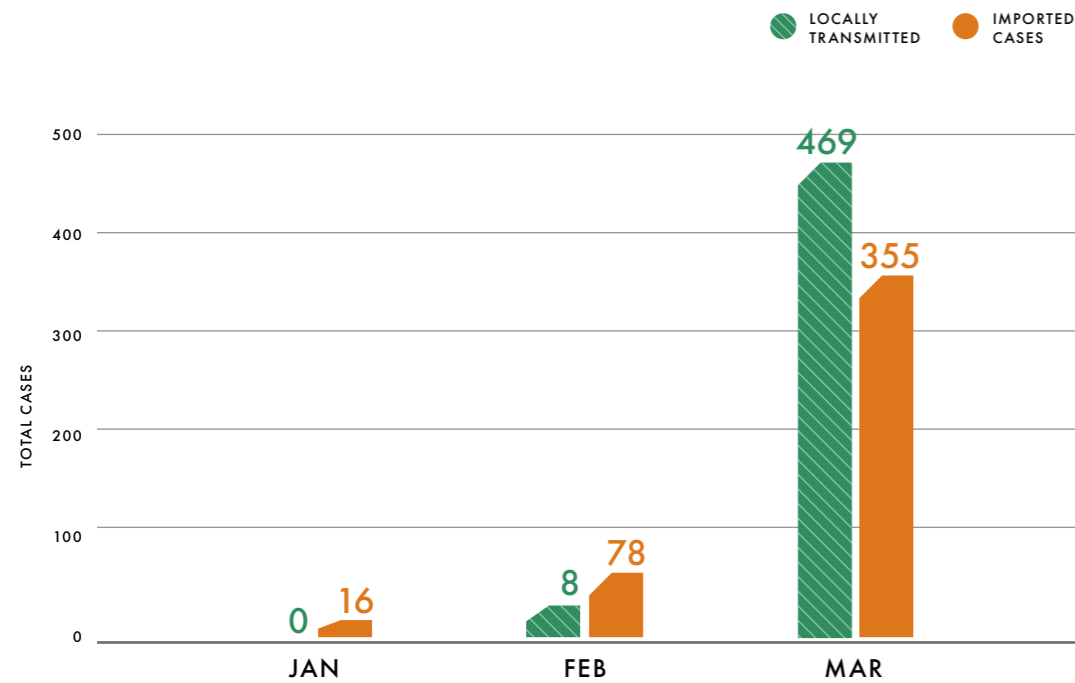
THE IMPENDING SURGE

Throughout this period, while the SAF worked hard to manage the COVID-19 situation within the military, the situation in Singapore was worsening. The invisible enemy had breached Singapore's borders and the capacity of the healthcare agencies was severely strained, with healthcare workers having to work very long hours to stem the tide. The Government knew that Singapore had a wicked problem on its hands that

would require organisation on a large scale to deal with the increasing number of cases.

In the months that followed, the SAF would be called upon to develop crisis management strategies with WoG partners, support national healthcare and lead assurance operations, and overcome tactical challenges on the ground. The ability of its service personnel to lead at the strategic, operational and tactical levels would be put to the test.

LOCALLY TRANSMITTED AND IMPORTED CASES IN SINGAPORE FROM JAN TO MAR 2020



Chief of Army (COA) MG Goh Si Hou engaging recruits at Basic Military Training Centre (BMTC).
Source: MINDEF

**ALL
HANDS
ON DECK**

It quickly became clear that the SAF would be called to action in this unprecedented “war” in a domain which was largely unfamiliar and against an enemy which was largely unknown. The SAF had experience dealing with SARS, but COVID-19 was clearly going to be a threat of a far greater magnitude. It was a cold start – there was no time to get warmed up before we had to spring into action.



HSTF made **14,553 calls** and sent **3,454 SMSes** from 28 January to 9 April 2020 to monitor the health of 1,565 individuals who were at higher risk of infection as they had returned from affected countries.

BIRTH OF THE FIRST TASK FORCE

It was the second day of the Chinese New Year and BG Lee Yi-Jin, Commander 6th Singapore Division (6 Div), was getting ready to bring his kids out. But CDF LG Melvyn Ong had other plans for him. Although there had been early warning orders, there was no indication up to that point that 6 Div would be set up as a task force. BG Lee made his way to MOH for the tasking brief. He could not have imagined then what his Health Surveillance Task Force (HSTF) would have to deal with in the months ahead.



SAF personnel carrying out call centre operations.
Source: MINDEF



Minister for Health Mr Gan Kim Yong and Permanent Secretary (Health) Mr Chan Yeng Kit visiting the Contact Tracing Centres on 11 April 2020.

Source: MINDEF



SAF personnel managing a Temperature Screening Station in Changi Airport.

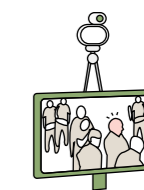
Source: MINDEF

The very first line of operations by the HSTF was to assist MOH in call centre operations. They were looking out for people who were at higher risk of infection because they had interacted with visitors from Hubei, China. A battalion of soldiers was activated to set up and operate call centres in Mandai Hill Camp, armed with call scripts instead of their Singapore Assault Rifle - 21st Century (SAR 21) rifles.

Two weeks later, with the growing number of imported COVID-19 cases, the Civil Aviation Authority of Singapore came knocking on HSTF's door, seeking assistance for temperature surveillance at the airport. Although the scope was far different from the original tasking of call

centre operations, HSTF gamely took on this additional task as it was a national crisis that required all hands on deck.

This was soon followed by the Immigration and Checkpoints Authority asking for help to conduct checks by phone on people who had been issued quarantine orders. The saying that "the reward for good work is often more work" rang true as HSTF quietly established itself as a reliable partner. The operational processes which the HSTF took over from the agencies they assisted were manpower intensive and difficult to scale up. With the pace of operations picking up, the HSTF braced itself to be ready to do more before long.



HSTF deployed **19 Infra-red Fever Surveillance Systems** at Changi Airport before handing over to Raffles Medical Group.

ANSWERING THE CALL

HSTF was presented with its biggest challenge yet when it was tasked to support MOH in contact tracing in March 2020. This was more extensive and more complicated than the previous tasks, especially after cases in the migrant worker dormitories rose dramatically. The national healthcare system came under immense pressure and MOH's capacity was maxed out.

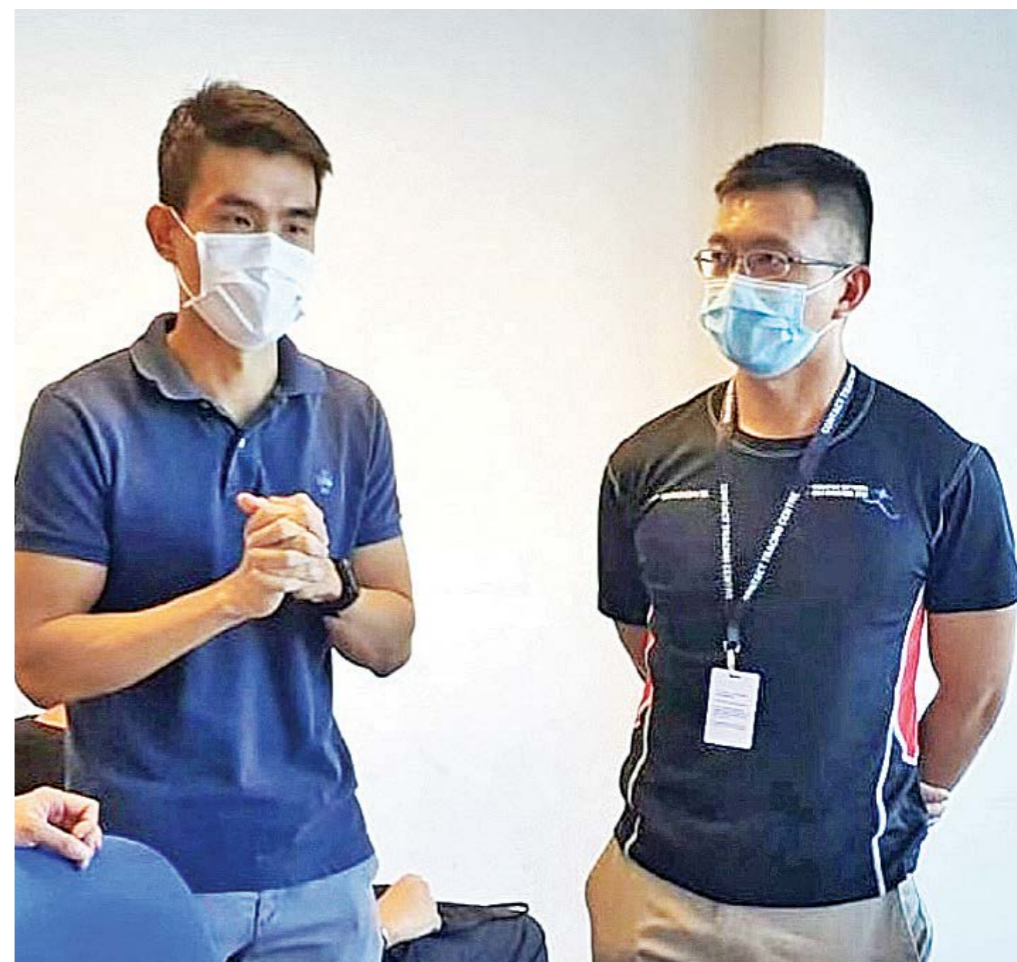
HSTF realised that good contact tracing could make a significant impact on curbing the spread of the virus, and it was vital for the task force to support MOH well in this mission. The task force quickly visited the MOH centres and arranged on-the-job training for its members to learn the protocols and procedures. The timeline for HSTF to phase in its operations was progressively shortened as the situation worsened. With the great urgency to ramp up the capability to provide this critical support, HSTF poured all its focus and energy to the task and managed to scale up its national contact tracing capacity tenfold within two weeks.

EARLY SETBACKS

HSTF's Ops Centre was in Mandai Hill Camp. Having such an Ops Centre meant that there could be more effective command and control over all the call centres as cases linked to the same cluster could be assigned to the same contact tracing centre. This was more efficient and saved considerable time. However, this concentrated arrangement also made the task force more vulnerable to the highly contagious virus.

LTC Danny Poh, who was Head Operations Branch, 6 Div, recalled the early setbacks that the team encountered shortly after the task force reorganised itself for the massive contact tracing operation. He was the SAF representative at one of the early multi-agency meetings at MOH to discuss the contact tracing processes. A few days after that meeting, he received a very unwelcome call from MOH informing him that someone who was at the meeting had tested positive for COVID-19.

SAF Contact Tracing Teams conducting their operations.
Source: MINDEF



LTC Danny Poh (left) back in action after his quarantine.
Source: MINDEF



HSTF made **109,612** calls to over **30,000** individuals who were serving Stay-Home Notices.

By this time, the seven contact tracing centres established in Mandai Hill Camp had grown into a 700-strong outfit. There was too much at stake to take the risk of COVID-19 spreading across the call centres should LTC Poh have caught the virus. The entire HSTF would have to shut down. It was a painful decision to

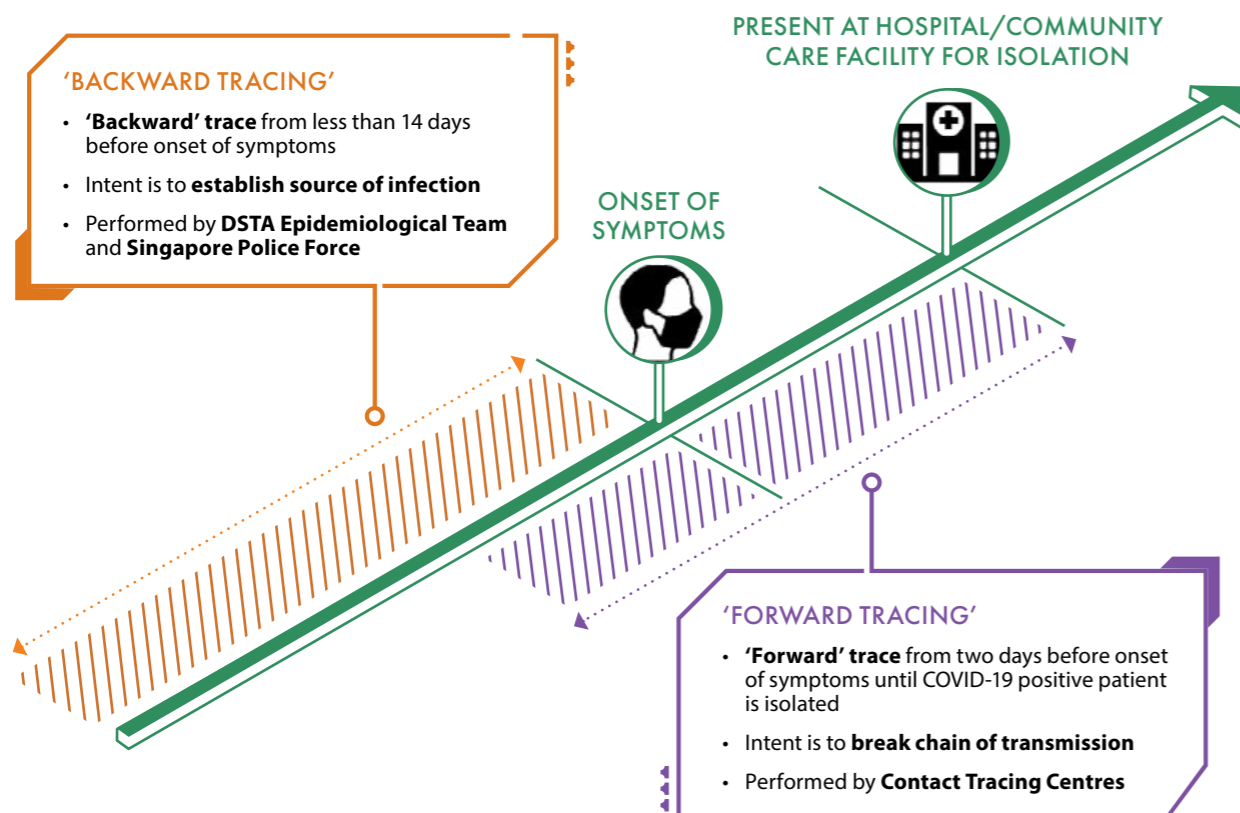
quarantine LTC Poh as he had a key role to play in this initial phase of the operation. That episode gave HSTF an early real-life lesson on the COVID-19 threat. Fortunately, LTC Poh tested negative and returned to operations after serving his quarantine notice.

THE QUICK LESSON ON CONTACT TRACING

Contact tracing was new to HSTF and, with this being Singapore's main defence against COVID-19, it was crucial that they got it right the first time. Contact tracing served two purposes. The first was to establish the source of infection by backward tracing to track COVID-19 patients' activities from the time symptoms appeared. The second was to break the chain of transmission as quickly as possible by forward tracing to identify all close contacts.

As HSTF became more familiar with the end-to-end contact tracing process, they soon realised that effective contact tracing depended heavily on activity mapping. Activity maps were important in backward tracing for epidemiology analysis, and in forward tracing for identification and isolation of close contacts. The information in the activity maps could be pieced together to provide a detailed and accurate picture for studying the distribution and spread of the virus.

CONTACT TRACING FLOW



INTEROPERABILITY CHALLENGES

Fighting the virus was a huge task. HSTF had to work with many agencies, each responsible for a different process. For instance, ICA led the Stay-Home Notice enforcement tasks, MOH managed contact tracing, and the National Centre for Infectious Diseases (NCID) oversaw activity mapping. These agencies had clear responsibilities and dedicated capacities, but they faced challenges when they had to integrate their work with one another.

The lack of a centralised body to coordinate activity mapping and contact tracing was hampering the output. There were many instances of activity maps being lost or not picked up by the contact tracing centres. The contact tracers were spending too much time extracting details from activity maps that came from different sources and trying to piece them together. There were problems because of legacy issues and a lack of clarity

over roles. But the crisis situation with the very high operational demands meant that no one had breathing space, let alone time, to take a step back to find solutions.

BG Lee saw a need to tighten the processes. He decided to set up a Centralised Activity Mapping Centre within HSTF that could do activity mapping directly from Mandai Hill Camp and still pull activity maps from NCID. With this, HSTF could independently run contact tracing operations from Mandai Hill Camp.

It was clear to HSTF that its role was to support other government agencies which would remain principally responsible for the outcomes of the various lines of operations. This would allow HSTF to concentrate on executing its mission well, tapping on the organising abilities and operational expertise of the SAF, while avoiding turf issues. BG Lee knew that establishing the working relationships with other agencies in the early phase of the operations would be challenging.

Contact Tracing Centre operated by a mix of SAF and MOH personnel in Mandai Hill Camp.

Source: MINDEF



Contact Tracing Centre operated by a mix of SAF and MOH personnel in Mandai Hill Camp (Source: MINDEF)

Senior Minister and Coordinating Minister for National Security Mr Teo Chee Hean visiting the Combined Analysis & Coordination HQ of the HSTF at Mandai Hill Camp.
Source: MINDEF

Initially, there were some challenges working with other agencies. There were already many established processes and inter-agency boundaries to follow, and these were there for good reason. But the situation had changed, so we had to go in with fresh eyes and no baggage, and try to be objective about what was needed to get the job done. At the same time, we were mindful that the SAF was there only to help out during the crisis; we would not be doing this forever.

So I reminded our people to set aside any perceived cultural differences and be constructive and forward-looking as a team. The onus was on us to convince them that what we were suggesting would improve the processes and outcomes given the present circumstances. And we should lean forward more to support the other agencies which were already very stretched.

BG Lee Yi-Jin
Commander HSTF

To be fair, dealing with the unknowns of the novel COVID-19 was not easy for everyone. There were times when both MOH and HSTF were equally puzzled, grappling with new discoveries about the virus and the corresponding changes in national policies. The many twists and turns made the contingency measures appear reactionary. HSTF soon realised that to get ahead of the virus, the modus operandi of all the government agencies in our WoG

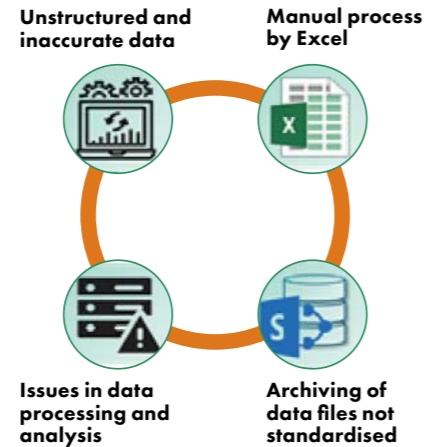
approach had to be fundamentally reviewed so that we could anticipate rather than merely react. Working hand in hand with the other agencies, HSTF invested precious time and manpower into building anticipatory planning and functioning capabilities. Such capabilities allowed proper contingency planning so that there would not be knee-jerk reactions, and decisions could be made after careful consideration of potential blind spots and pitfalls.

TECHNOLOGY CHALLENGES

It became more and more challenging to do contact tracing promptly, especially after cases surged in April 2020. Data poured in from multiple sources in different formats. The Ministry of Manpower (MOM) and MOH collected data diligently, but the numerous sources only caused confusion. Worse, the data not only did not include activity mapping and close contacts, but was also sometimes inaccurate. It reached a point where the contact tracers were spending more time locating activity maps than doing actual contact tracing.

There was no common platform to work on and it became very urgent to fix the need to make better and quicker sense of the data. There was a critical need to standardise how activity maps should be created, stored and accessed. The massive contact tracing operations would not be sustainable if they continued to rely only

INITIAL CHALLENGES IN CONTACT TRACING PROCESSES



on Microsoft Excel. HSTF quickly looked to DSTA for a technology solution.

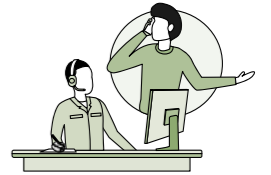
MAJ Lee Yiu Wing, Battalion 2IC 6th Signal Battalion, who was responsible for digital solutions and regarded as the chief technology officer of HSTF, had the idea of creating a web-based application to enhance end-to-end

*LTA Kong Yu Jian and his team from RSAF Innovation SWiFT Office discussing how to integrate data sources on a single platform.
Source: MINDEF*



contact tracing processes. He knew that the lack of software development talents in his project team was the biggest challenge. They had the funds to employ contractors to develop contact tracing software, but the process would take too long. So MAJ Lee looked for resources within the SAF and DSTA. With support from Comd HSTF and the Army's Chief Signals Officer, DSTA and SAF in-house programmers from HQ Signals and Command Systems and the Republic of Singapore Air Force (RSAF) Innovation SWiFT Office soon came on board for the digitisation journey. Another challenge for MAJ Lee's team was to resolve the differences with the IT systems developed by other ministries. The project team often found that it required extra effort to integrate its product into MOH's system. And there was resistance even from within HSTF.

The first prototypes of the SwiftCobra application required iterative improvements which incorporated user feedback. HSTF doubled down on its innovation efforts to come up with an ops-tech solution for more efficient data collection and integration. This was resource intensive and time consuming, and some outcomes had to be aborted. After two weeks, the first version of the web-based application was rolled out on MOH's intranet. MAJ Lee and his team engaged the Activity Mapping Centres constantly to refine the processes for contact tracing. But it took some time to get the new processes implemented by the relevant government entities. When SwiftCobra was eventually adopted by all of them, most of the problems of integrating the data from the various sources were resolved.



HSTF traced **53,906** COVID-19 cases and raised Quarantine Orders for **163,806** individuals.

There was resistance to using the new system from the Centre Head and activity mappers. We managed to launch the system only because the order came down from the HSTF HQ. But getting buy-in from the ops users and sustaining the trust of the HSTF HQ were battles for the team. . . . The team's pinnacle moment was when our system was successfully integrated with the other ministries' systems... We had started with building an internal system to serve the SAF but were soon requested by MOH to extend it to all the public hospitals.

MAJ Lee Yiu Wing
Battalion 2IC, 6th Signal Battalion

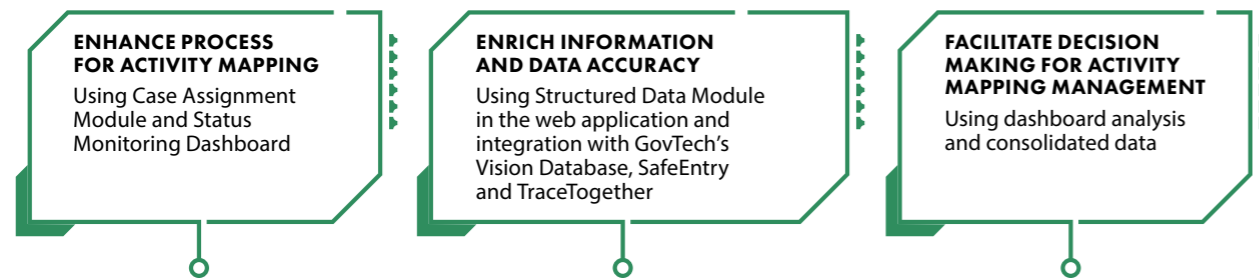
The SwiftCobra system had gone beyond digitising activity maps. It featured links that were also developed across the WoG IT infrastructure so that contact tracing could be done seamlessly with synchronised data sources. When SwiftCobra and the national applications of SafeEntry and TraceTogether were integrated, the time taken by the contact tracing teams to identify and quarantine a close contact

was more than halved, from four days to less than two days. HSTF can look back on SwiftCobra as one of many successful solutions that were born from the ops-tech partnership that yielded better operational outcomes with reduced manpower, and played an important role in enabling HSTF to accomplish its mission. SwiftCobra continues to be used for contact tracing.

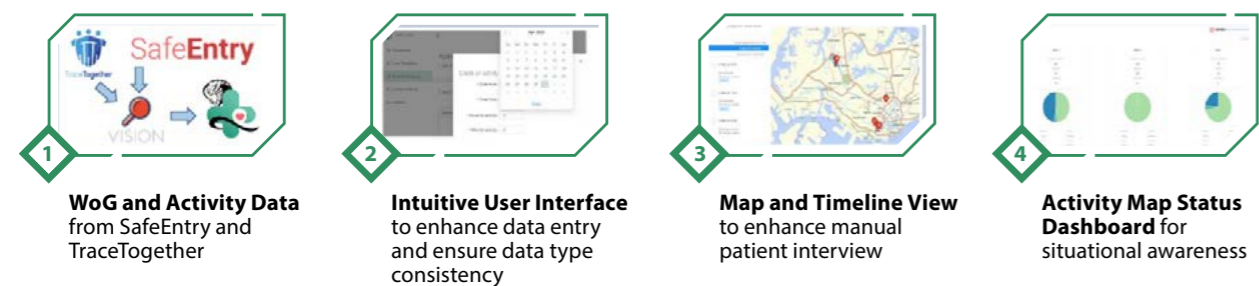
SYSTEM DESIGN FOR SWIFTCOBRA



SYSTEM OBJECTIVES



KEY FEATURES



SUSTAINING THE FORCE

The SAF servicemen and women manning HSTF's seven fully operationalised contact tracing centres and a centralised activity mapping centre were new to their tasks but everyone pressed on. Every day, HSTF officers spent long hours making calls, often having to deal with angry people. The pressure grew for more manpower to sustain the task force.

While HSTF tried to reduce the need for manpower by continually streamlining the operational processes, it recognised that it was equally important to reorganise structures so that operations would be more efficient. But the process to review some technical aspects of the operations was often protracted. Most stakeholders did not have much appetite for change, so

changes had to be introduced gradually to gain buy-in. Sometimes, many revisions and iterations were needed before the business processes and operations could be enhanced. There were also agencies which quickly dismissed HSTF's ideas because they did not have enough resources to support the changes. HSTF had to learn how to package proposals and secure the necessary resources, and it had to learn fast. It did not want any needed change in structure or process to be bogged down by insufficient resources.

There had been a measure of success by MOH and HSTF in curbing the transmission of COVID-19, but the fight was far from over. Singapore's social fabric, economic progress, and the people's spirit would be put to more painful tests. And the SAF would have to continue to play its part in the national "war" against COVID-19.

A digitised Activity Map on SwiftCobra. Source: MINDEF

In February 2020, panic buying hit the country after the Government raised the Disease Outbreak Response System Condition (DORSCON) level from Yellow (Enhanced Preparedness) to Orange. Singaporeans were gripped by anxiety and fear that we would soon run out of essential supplies. Long queues formed at supermarkets and shelves were emptied of toilet paper, instant noodles and many other food and household items. The Government had to respond decisively to restore calm and assure Singaporeans that there were ample supplies.



Bare shelves at a Sheng Siong supermarket in Boon Keng on 7 February 2020.
Source: Ms Catherine Poh Huay Suen, Wikimedia Commons

SETTING UP CSS TASK FORCES

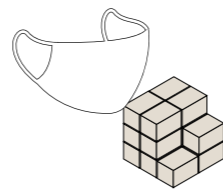
People were particularly anxious to get their hands on face masks, and the anxiety only grew as they faced difficulty getting them. The SAF was quickly called to action. The mission: to pack and distribute 5.5 million surgical masks across the island. That was the first task for the Combat Service Support Command (CSSCOM) as they joined the nation's fight against COVID-19.

Within 48 hours, all the surgical masks were packed and delivered. That was a time of great uncertainty, as there was still little known about the disease. It was not clear whether another sizeable task force was needed. What was clear was that the SAF would have to play its part in the WoG effort to deal with COVID-19.



I had a similar experience as Chairman Logistics and Finance in National Day Parade 2015, when we delivered fun packs to every Singaporean household. However, we had much more time to plan and execute then. The mask distribution operation was something totally new for the SAF. But our training had prepared us well as leaders, to enable us to sense-make and adapt so that we could meet all the demands of the task that had been assigned to us.

COL Tan See Hai Melvin
Chief Transport Officer / Commander for Mask Delivery Operation



CSSCOM packed **5.5 million** masks in 48 hours and distributed to 89 Community Clubs and Centres for **1.39 million** households.

BG Terry Tan, Commander CSSCOM, knew from the onset that CSSCOM had to play a critical supporting role. This included providing specialised logistics management skillsets that other entities sorely needed as they would soon be stood up to join the fight against COVID-19. He was mindful that his resources had to be carefully allocated to where they could make the most impact. With that in mind, CSSCOM opted for a different approach from the other SAF task forces. Instead of setting up a large, centrally managed entity, a series of smaller and more nimble Combat Service Support Task Forces (CSSTFs) were specially configured to support the different bodies and agencies across MINDEF and the rest of the Government. CSSCOM could then be more agile and give more effective support

as demands evolved rapidly. Numerous CSSTFs were eventually set up to support the frontline entities in their logistics planning and execution and to develop technology solutions to carry out these critical functions effectively and sustainably.



1,500 SAF personnel packed 5.5 million masks in a 48-hour operation at SAFTI Military Institute.
Source: MINDEF

SAF personnel donning hairnets, latex gloves and surgical masks to ensure hygiene while packing masks.
Source: MINDEF

SUSTAINING THE TASK FORCE

The uncertainty surrounding COVID-19, the risk of being infected, and the prospect of working non-stop took an emotional and psychological toll on frontline workers. The CSSCOM leadership thought hard about how they could sustain their various CSSTFs in this long-drawn battle. They knew that their people, on whom the success

of the mission depended, would have to be deployed to the frontlines for many of the CSSTFs' tasks. Their health and safety had to be taken care of, while they worked hard to care for the needs of others.

An internal Care Task Force was set up to watch over the physical and emotional needs of the soldiers and their families. Defence psychologists conducted surveys to understand the soldiers' morale and

BG Terry Tan engaging servicemen of a CSSTF to ensure they are physically and mentally supported well throughout the COVID-19 fight.
Source: MINDEF

any problems they had. There was a safety team to ensure that the CSSTFs personnel adhered to safety protocols and their well-being was preserved.

In addition, HQ Maintenance and Engineering Support (HQ MES) was tasked to develop ops-tech solutions to mitigate operational risks so that the servicemen and women could focus on their mission

and return home safely to their loved ones. HQ MES responded quickly with a slew of digital solutions. One of these was the development of the m.Detect software, which helped to detect and enforce the proper wearing of masks. All these efforts helped safeguard the well-being and morale of the CSSTFs soldiers, and bolstered the success of their mission.



A defence psychologist conducting a survey with a serviceman from a CSSTF.
Source: MINDEF



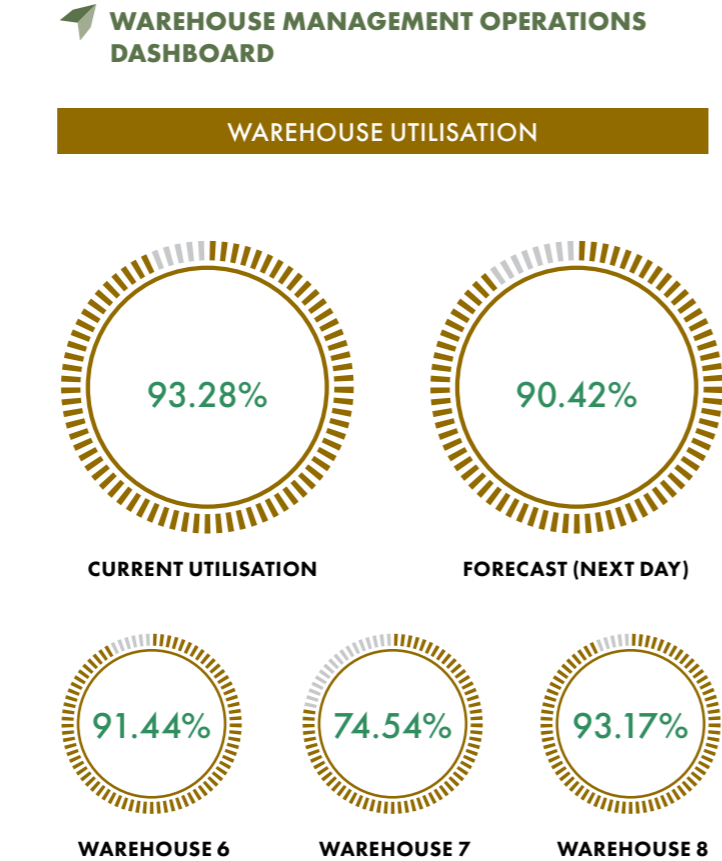
m.Detect, a face mask detection software developed by HQ MES to enforce proper mask wearing.
Source: MINDEF

“OPS-TECH” IN OUR DNA

In early April 2020, a 12-man CSSTF was tasked to support NTUC FairPrice in supply chain operations. Singaporeans had to be assured that they could continue to get essential goods. The task force’s mission was to ensure that Singaporeans could have this confidence. The plan was to establish a distribution centre, making use of empty warehouses and implementing processes to stockpile, allocate and distribute the goods to NTUC FairPrice outlets in eastern Singapore. ME4 Lim Zhi Han, Detachment Commander, 1st Army Maintenance Base (1 AMB), was appointed stock control officer of the distribution centre. He recalled that at the beginning the operations were hamstrung by limited IT infrastructure.

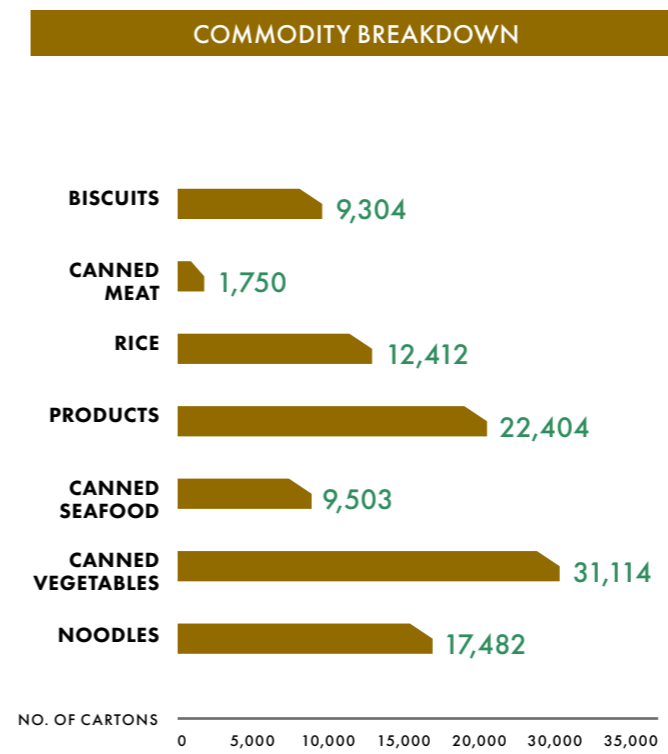
The existing warehouse management system had rich data but it lacked data visualisation features. So we could not have a full situation awareness picture.

ME4 Lim Zhi Han
Detachment Commander 1 AMB

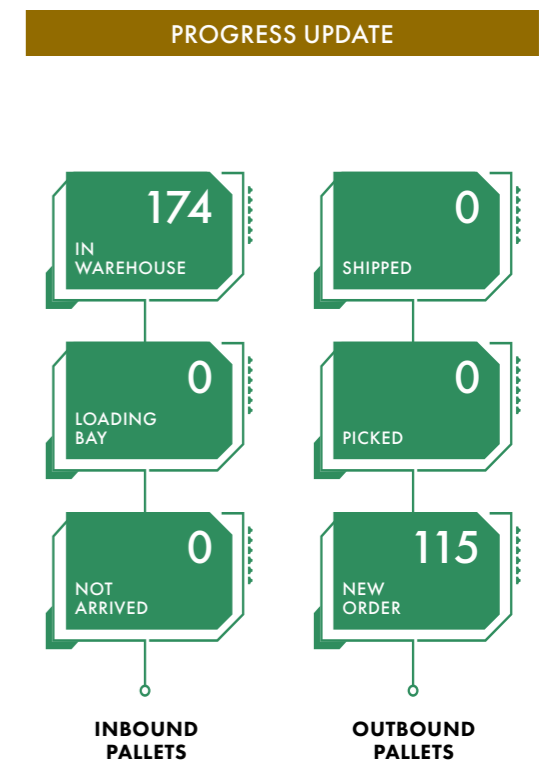


Operations dashboards were developed to assist in warehouse management which provided a clearer overview of commodity stockpile data.

Knowing that it was important for the management to be able to make quick stockpiling decisions, he self-coded and implemented dashboards that were compatible with the existing system. With these dashboards, the centre could provide sharper updates for management to make more informed decisions.



This was only one of many illustrations of how valuable it is when our service personnel have ops-tech mindsets and competencies. This must be in the SAF’s DNA. Our people must be able to identify opportunities for technology solutions and have the expertise to exploit technological capabilities to find agile solutions for our operational needs.



Unlike before, this is no longer just about projects with long gestation periods. In the digital space, prototypes can be delivered in a matter of days or even hours. In a dynamic operating context, these prototypes, or Minimum Viable Products (MVPs), could well see us through a mission.

OPPORTUNITY FOR TECHNOLOGY

Against the backdrop of the dynamic demands and the successes of the agile solutions delivered by the men and women in CSSCOM, some sacred cows were slain and mindsets shifted. Singapore and the SAF had to exploit technology to contain the spread of COVID-19. This was a life-and-death fight against a most fearsome enemy.

The CSSTFs realised that the situation was ripe for more ideas to surface and these

could be implemented quickly. Seeing this opportunity in adversity, the task forces were actively encouraged to innovate and push for better ways to do things. One of the many CSSTFs was assigned specifically to support technology innovations and upgrades. This Combat Service Support Tech Support Team (CSSTST) developed several practical and useful customised ops-tech solutions, which supported various lines of operations.



MWO (RET)
Francis Goh,
Ops Warrant,
checking on the
stockpiles before
moving them into
the warehouse.
Source: MINDEF



A CSSTF led by COL James Liew (red mask) supporting NTUC FairPrice (at Tampines Warehouse).
Source: MINDEF

Never stand still. We must stay relevant. We must challenge assumptions. We must be able to synthesise, communicate, influence and act decisively. We have to fight smart to win.

BG Terry Tan
Commander CSSCOM

MOBILE SWAB STATIONS

As COVID-19 cases among the workers residing in the dormitories rose dramatically in early May 2020, the Multi-Ministry Task Force announced its plan to test over 300,000 dormitory residents. It would be tremendously challenging for the Joint Task Force (Assurance) [JTF(A)] to isolate and transport migrant workers from their dormitories to external swab facilities. Such an operation would also be fraught with risks. A way had to be found to bring swabbing facilities to the migrant workers instead.

Taking a leaf from the swab systems in Singapore General Hospital (SGH), CSSTF developed the Mobile Swab Station (MSS). It took the team only three weeks to conceptualise, operationalise and deploy the first swab station. This proved to be a good and sustainable solution. It provided a safe and conducive environment for swab operations, and the mobility of the swab stations enabled JTF(A) to plan ahead and cover the dormitories in a systematic manner.

We knew that time was critical and we had to deploy the MSS on the ground as soon as possible. Fortunately, the team – which included those from DSTA, ST Engineering and The Biofactory – worked very well together; we had a tight partnership. So we managed to deploy the MSS within three weeks from conceptualisation.

The team took a user-centric approach. We got the SGH doctors to test out the system and give their feedback. And we took the healthcare workers' needs into account and got them to test the prototype before we moved to full-scale fabrication.

ME4 Yee Kar Kit Barry
Lead Engineer HQ MES



The Mobile Swab Station development team.
Source: MINDEF

In the initial phase of the swab operations, CSSTF implemented technological solutions to replace the manual approach of recording swab results, which was vulnerable to human error and suboptimal coordination of registration, testing and discharge timelines. CSSTF's Mobile Express Scanner, which replaced manual recordings, reduced registration time as well as unnecessary contact time between the administrative staff and the patients. Both innovations in swabbing capabilities – the swab stations and mobile express scanners – worked so well that they were used throughout the SAF's swabbing operations in the dormitories.



Scan this QR code to view the Mobile Swab Station and Mobile Express Scanner in action!



The Mobile Express Scanner app helped to coordinate registration, testing and discharge timelines, resulting in time savings and reducing contact between patients and frontline staff.
Source: MINDEF

SUPPORT FOR SINGAPORE EXPO COMMUNITY CARE FACILITY

As it became clear that not all COVID-19 cases required hospital care, the Government set up Community Care Facilities (CCFs) for patients who were asymptomatic or had mild symptoms, so as to ease the strain on the hospitals. When the Singapore EXPO CCF was set up, the daily Standard Operating Procedure (SOP) to perform checks on vital signs for every single patient was extremely time-consuming. This “pull” method consumed most of each medical professional’s day. A digital automated paging system was quickly developed which “pushed” patients to report for daily checks as required, and reduced the load on medical professionals. This system reaped significant savings of up to 90% in man-hours and freed the medical team to focus on their primary medical tasks. This was a good demonstration of how simple technology coupled with a strong understanding of operational flow could result in a force multiplier effect.

MANAGING UNCERTAINTY

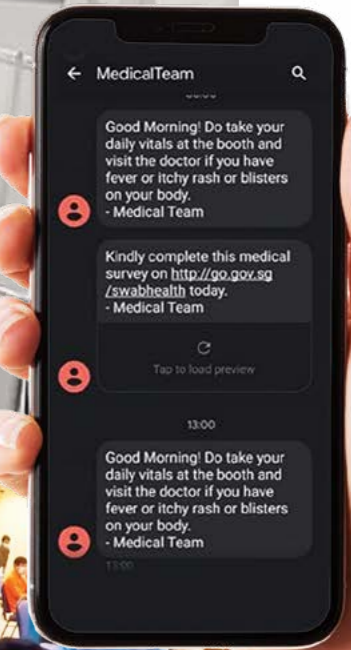
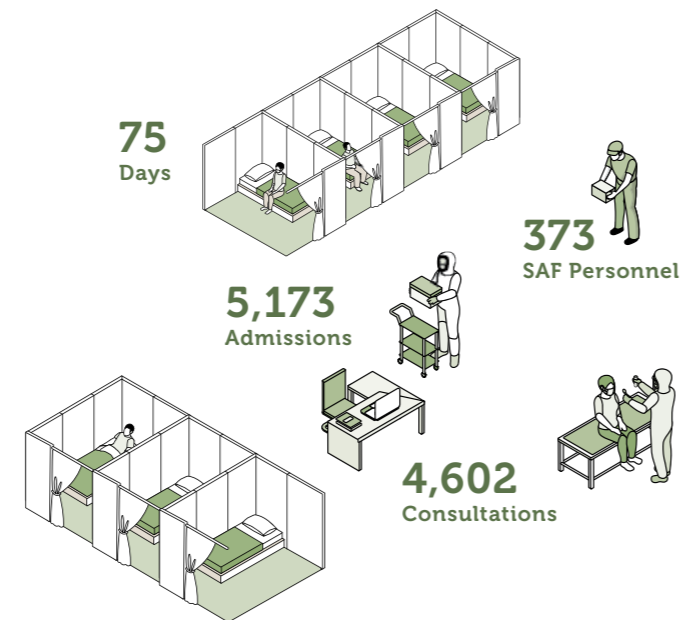
COVID-19 accelerated the need to embrace technology, both to fight against the virus and also because people changed the way they worked and connected. For the SAF, our experience battling COVID-19 underscored the great value of technology-enabled innovations. CSSTFs never stopped trying to push the boundaries in making use of technology for the fight.



Singapore EXPO CCF with 8,500 beds.

Source: MINDEF

SINGAPORE EXPO COMMUNITY CARE FACILITY



We learnt and adapted quickly as the operating context shifted, and we translated what we gained from our experience into operational processes that we continued to refine throughout the mission.

BG Terry Tan
Commander CSSCOM

At that time, there was still much about the virus that was not known. No one knew for sure whether asymptomatic people could be infected, or how transmissible or resilient the virus was. What was clear was that it was critically important that the spread of the virus was contained when vaccinations were still not available, and that the migrant workers could still carry out essential work.

With the surge in COVID cases, the PBDs were gazetted as “isolation areas” and the residents placed under quarantine. MOM focused its operations on two areas. First, the raging outbreak in a handful of dormitories had to be contained. Second, migrant workers performing essential services, such as sanitation, logistics and construction had to be moved out of the dormitories to other living quarters so that their work could continue during the “Circuit Breaker”.



Migrant workers being quarantined in a Purpose-Built Dormitory that had been gazetted as an isolation area.
Photo Credit: LTC (RET) Chua Moh Tean Alex



Migrant workers arriving at SAF Tanjong Gul camp.
Source: MINDEF

STANDING UP THE TASK FORCES

The SAF set up two more task forces to support the national fight against COVID-19. These were operationalised at the same time that the “Circuit Breaker” was activated on 7 April 2020. One was the JTF (A). It was put under the charge of Chief Guards Officer BG Seet Uei Lim on 6 April 2020.

JTF(A)’s mandate was to manage the COVID-19 outbreak in the PBDs. In two days, JTF(A) configured and deployed six Forward Assurance and Support Teams (FASTs), comprising SAF, Home Team and MOM officers, and the remaining 37 teams were fully deployed within the next two weeks. Each dormitory was served by a dedicated FAST. These teams worked with limited resources to implement SMM and provide medical care, including medical manpower, and testing and laboratory resources.

We saw that this was a crisis of fear for our migrant workers: fear of infection, fear of losing livelihood, and fear that nobody cared. With these three fears in mind, we developed our corresponding lines of operations.

BG Seet Uei Lim
Commander JTF(A)



SAF medical teams doing health checks on migrant workers.
Source: MINDEF



FAST personnel working hand-in-hand with migrant workers, dormitory operators and healthcare workers to stem the tide of COVID-19 in the dormitories.

Photo Credit: LTC (RET) Chua Moh Tean Alex

Officers on the ground quickly recognised that something had to be done about accommodation in the dormitories. There was no end to the quarantine in sight and the 300,000 dormitory residents were growing more uneasy and agitated with each passing day. JTF(A) had to work fast if it did not want an eruption of full-blown unrest in the dormitories. The FASTs worked round the clock not only to fight the virus but also to keep the peace in the dormitories.

(Every worker) had his own set of worries, be it job security, being away from family, or losing his freedom.

ME4 Sivakumar s/o Kanagasundaram
OIC Infrastructure Maintenance Section
507 Squadron
FAST personnel deployed at Kranji Lodge 1 Dormitory

The migrant workers were largely confined to their rooms. There was very strong cabin fever. So definitely there was resentment and restlessness. They just wanted to get out.

Koh Zhao Qiang
Manager, MOM
FAST personnel deployed at Kranji Lodge 1 Dormitory

JTF(A) TOUCHPOINTS

FOREIGN WORKER POPULATION

211,000 Purpose-Built Dormitories	90,000 Factory Converted Dormitories	21,000 Construction Temporary Quarters
---------------------------------------------	------------------------------------------------	--------------------------------------------------

TESTING OPERATIONS

299,951 Swab Tests	52,281 Serology Tests	20 Wastewater Autosamplers
------------------------------	---------------------------------	--------------------------------------

MEDTECH

19,285 Pulse-Oximeters	2,495 Tele-Consultations	122 Tele-Kiosks
----------------------------------	------------------------------------	---------------------------

LOGISTICS

30,000,000 Meals Distributed	270,000 SIM-Cards Distributed	220,000 Care-Packs Distributed (e.g., including Personal Protective Equipment, Thermometer, Sanitiser, Toiletries)
----------------------------------------	-----------------------------------------	------------------------------------------------------------------------------------------------------------------------------

The other task force that was set up was the Emergency Housing Task Force (EHTF). Its commander, BG Chua Jin Kiat, Commander 9 Div and Chief Infantry Officer, was given orders to turn vacant SAF camps into accommodation for COVID-free migrant workers who were designated as essential workers. Singapore could not afford to have workers who maintained critical infrastructure and performed daily essential public services quarantined indefinitely. As the COVID-19 cases in the dormitories soared, it was only a matter of time before all migrant workers in the dormitories would get infected if they remained there.



A SYSTEMS APPROACH TO CRISIS RESOLUTION

Having applied the SAF’s Mission Analysis processes to the problem, JTF(A) soon came to a worrying conclusion. It was neither sufficient nor sustainable to merely put out fires as they broke out. It was not enough to get through the “Circuit Breaker” with sufficient essential workers. We had to ensure that Singapore could return to a normal state as soon as possible. This meant releasing as many migrant workers as possible back into the workforce, beyond those already identified as essential workers.

This would require a sustainable housing solution for the migrant workers beyond the immediate needs. The community infrastructure which had been locked up as recovery sites had to be released so that both the economy and society could continue to function as normally as possible. Most importantly, we had to avoid overwhelming the healthcare system.

JTF(A) was juggling two balls – committing resources and manpower to contain the spread of the virus in infected dormitories, while investing equal effort to prevent new clusters from emerging in “clean” dormitories. However, the large number of residents and limited testing capacity soon meant that infections were festering undetected in some dormitories. The demand for Polymerase Chain Reaction (PCR) testing resources quickly far outstripped the supply allocated to JTF(A). The shortage of testing resources meant that the outbreak could well spiral out of control if a solution was not found.



Bedok Camp II converted into temporary housing for migrant workers in essential services.

Source: MINDEF

EHTF had to race against time to house the migrant workers in essential services outside the dormitories as speedily as possible. Over the next seven days, it assembled teams comprising commanders and trainers from ground units who had experience enlisting SAF recruits and processing National Servicemen (NSmen) for ICT. Jurong Camp II was ready to receive the first batch of 350 migrant workers within four days. Bedok Camp II also stood up in record time. Within a week of its formation, the EHTF had housed more than 1,700 workers in SAF camps.

Migrant workers being registered as they moved into temporary housing at SAF camps.

Source: MINDEF



Scan this QR code to view EHTF personnel in action!



SAF camps housed **17,000 migrant workers** working in essential services.

7 SAF camps were repurposed as temporary housing.

The team returned to the drawing board. Adopting a systems thinking mindset, it mapped out the ecosystem of assets and stakeholders which were both directly and indirectly relevant to the task. This revealed that there were alternative testing resources available at the national level, such as wastewater testing and serology. These were under-utilised because they were relatively less effective in detecting active transmissions. But they could be useful surveillance tools in dormitories where viral transmission was low.

JTF(A) then devised a creative combination of the available testing resources to develop a comprehensive testing regime that could cater to different COVID-19 situations across the dormitories. Those that had more cases were allocated serology tests which could identify recovered and non-infected workers. Dormitories with fewer cases were allocated

pooled PCR tests. There was regular testing of wastewater in COVID-free dormitories to provide early warning of contagion.

This strategy allowed the JTF(A) to keep a pulse on all dormitories without depleting the limited PCR testing resources. Surges were quickly arrested as they became apparent. This ultimately helped the team to transit from crisis management to crisis resolution. To get to that point required much time to be invested to appreciate the dynamic situation, translate evolving policies into concrete plans, and communicate orders for the deployed forces (FAST, medical and testing teams) to act. It was a demonstration of systems thinking and discipline in executing operations, which are key leadership competencies that the SAF inculcates in every officer, that enabled JTF(A) to look at the problem from a wider perspective and achieve mission success within a matter of months.

FAST personnel working alongside healthcare workers to conduct mass testing at a dormitory.
Source: MINDEF



APPLYING THE SAF'S ACTION LEARNING PROCESS TO LEARN ON THE GO

The SAF's instincts of learning on the go to achieve mission outcomes, when there is uncertainty and pressure of time, were put to the test in dealing with COVID-19. The task forces and the officers supporting them responded to the constantly changing situation and accompanying demands by adapting structures, processes, and procedures to new missions as they emerged. This was best illustrated in how the SAF

applied the principles underpinning its day-to-day management of tens of thousands of soldiers in routine training and exercises to the management of the migrant workers during the pandemic.

Both task forces identified the need to break down organisational and cultural silos. This was important so that the disparate groups, with the SAF's different ground units working alongside other ministries and Non-Governmental Organisations (NGOs), would be aligned in pursuit of a shared intent and mission and could effectively harness the strengths of inter-agency collaboration.

A multi-agency discussion involving MOM, MOH and the SAF.
Source: MINDEF



Daily DAR session involving FAST personnel and dormitory managers. Source: MINDEF

Through the months of COVID operations, we could see that when the purpose was very clear, everybody – regardless of where they were from, there’s no line drawn – everybody just came together to support one another.

Alphonsus Chua
Head Infrastructure, MOM

Before Activity Review (BAR) step of the Action Learning Process (ALP) before new tasks were undertaken. In the BAR, lessons learnt from past experiences were factored into the design of the upcoming operation. This contributed to better alignment among the various groups - most evidently in the FAST, which established medical posts with MOH to isolate COVID-19 patients, and transferred close contacts of the patients to quarantine facilities.

Crucially, learning on the go continued as the missions and situations evolved. These were similar to the During Activity Review (DAR) that are typically conducted in the midst of SAF operations, when actions already taken are reviewed to check if they have achieved the original intent and adjustments are made if necessary. The task forces constantly applied the SAF’s ALP in their COVID-19 operations, and this helped them stay agile to manage new challenges on the ground.

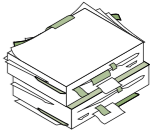
The first step they took was to reorganise the numerous agencies under each task force into task-oriented teams. This was adapted from the way that the SAF would employ all its Services and Formations in times of crisis and war. The task forces also carried out the

MAKING USE OF BATTLE PROCEDURE TO GAIN MISSION CLARITY

Numerous points of friction on the ground often made things more complex and inefficient. For instance, soldiers had to make sense of nominal rolls of different versions and formats, provided by 1,140 Factory Converted Dormitories and 168 Construction Temporary Quarters. So the task forces adapted an SAF process, known as the Battle Procedure (BP), to analyse their mission, form a collective appreciation and analysis of the situation at hand, and develop variegated action plans to cater for as many eventualities as possible.

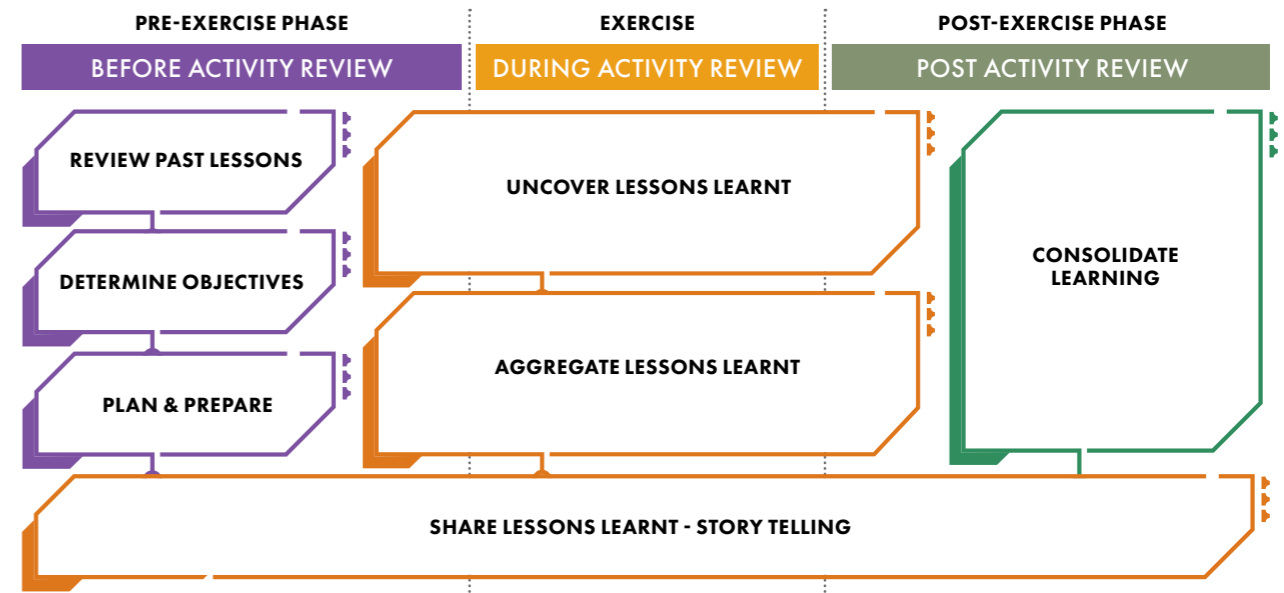
EHTF took a leaf from HQ Infantry and BMTC’s expertise in processing thousands of recruits and NSmen at a time, to ensure a smooth flow of migrant workers into the SAF camps. However, the soldiers on the ground found it a challenge to manage the increasing flow of workers, not only because of the numbers but also because they were completely unfamiliar as they had never interacted with migrant workers before.

To systematically enhance their processes in managing the migrant workers, EHTF’s ground commanders performed a Collective Appreciation of Situation. This review yielded insights into the informal social networks among the migrant workers. EHTF realised that they could work through charismatic and influential leaders among them



Soldiers had to make sense of nominal rolls of different versions and formats, provided by **43** Purpose-Built Dormitories, **1,140** Factory Converted Dormitories and **168** Construction Temporary Quarters.

THE ACTION LEARNING PROCESS



The Action Learning Process is one of three Leadership Development Processes in the SAF that provide a comprehensive and systematic approach to the design of learning in context. It is a design frame that can be implemented in training, exercises and operations such as during the COVID-19 operations, to support structured conversations and organisational learning. These skills are taught to young leaders in the SAF schools, so that they will be confident to put them into practice when they lead learning and operations in the units.

Looking back, it was an uncertain period for about 7 to 10 days, when the mission demands changed, on an almost-daily basis. But a clear Mission Analysis, as taught in the SAF Battle Procedure, allowed us to decide what needed to be done as a baseline, and what were the special-to-type arrangements which could only proceed after the decision on camp usage had been made. To me, it was a good example of the SAF's training coming to life, and being put into use in an operational setting.

BG Chua Jin Kiat
Commander EHTF



In-processing migrant workers into their temporary "homes" in SAF camps.
Source: MINDEF



SAF personnel working with migrant worker leaders in the dormitories.
Source: MINDEF

to perform more effective outreach. In the process, these leaders took ownership of what needed to be done and became powerful advocates of what EHTF wanted done in the dormitories. Through them, EHTF was also able to provide reassurance and a semblance of normalcy to the workers who had suddenly found themselves in new "homes".

The SAF's operational experience in the dormitories showed that the deliberate application of ALP and BP before, during, and after our operations served us well. These processes ensure that we constantly learn from our experience, anticipate emerging situations, exploit fleeting opportunities, and refine best practices to stay ahead of the curve. They gave the SAF task forces greater capacity to develop more comprehensive solutions beyond migrant worker dormitories in the fight against COVID-19.

We were faced with the massive task of stemming the spread of COVID-19 in the migrant worker dormitories while caring for them and supporting them, so we had to move fast. We relied on mechanisms that have served us well over the years and applied their principles to the new mission. We forged cohesive teams across organisational and cultural lines. And we adapted to challenges even as they evolved.

BG Seet Uei Lim
Commander JTF(A)

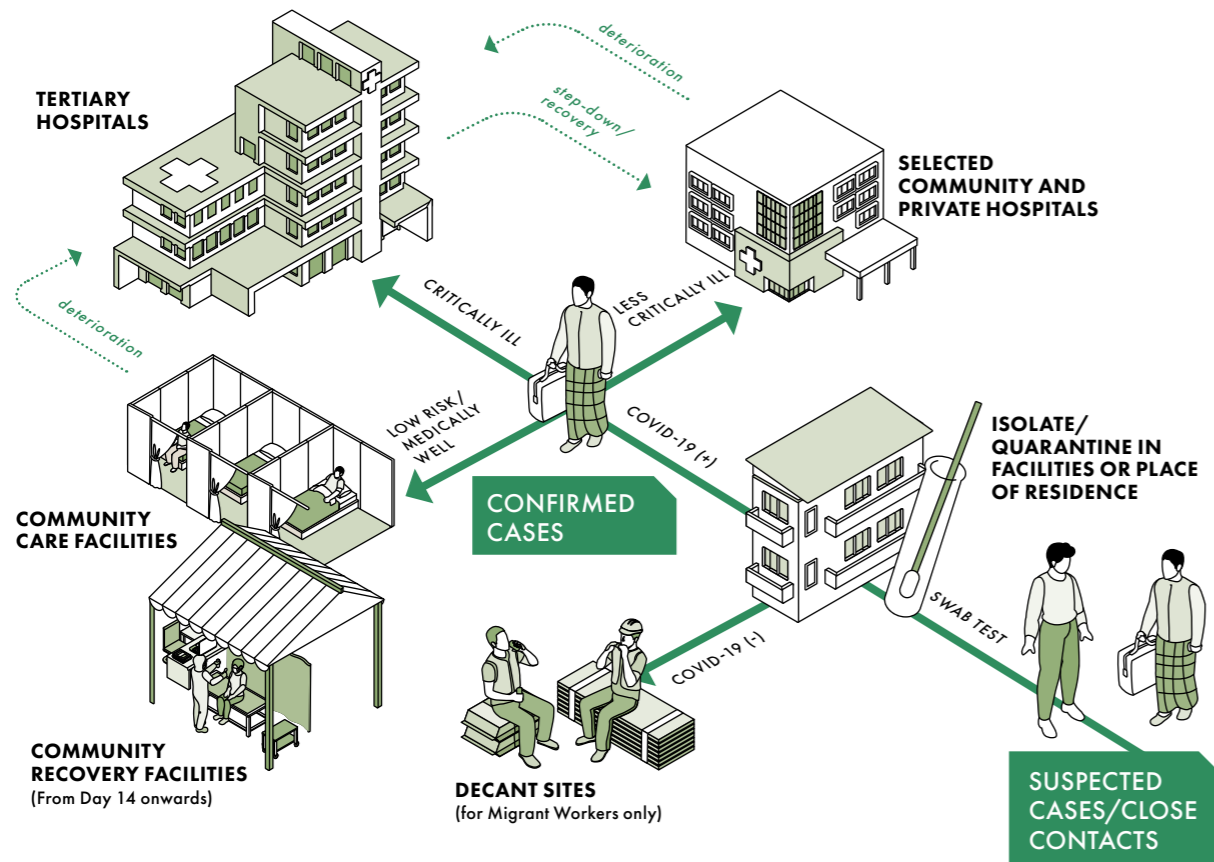
Towards the end of April 2020, things seemed to be looking up. The daily number of new cases among the general public seemed to have peaked with the introduction of the “Circuit Breaker” in early April and progressively tighter control measures in the following weeks.

By that time, EHTF and JTF(A) had swung into action. Four SAF camps had begun operating as temporary housing facilities for migrant workers and a few more camps were in the process of being converted for the same purpose. Every day, about 400 migrant workers from at-risk dormitories were being processed to move into these clean sites and other isolation facilities. But the problem was far from being over. COVID-19 cases continued to soar in the dormitories and demand for care facilities and resources was surging. More agencies had to be roped in to provide the care. JTF(A) was responsible for recovery-in-place in the dormitories; MOH managed the hospitals and CCFs; many others ran the Community Recovery Facilities (CRFs) and worker decant sites. Everyone understood that the mission was to isolate and care for the patients. But a key element was missing. There was no coordination to piece together information on the COVID-19 patients and project requirements for the beds in hospitals, CCFs or CRFs. The centralised entity in MOH assigning hospital bed spaces nationwide was a small outfit with limited capacity. Moreover, each facility had its own bed management system. With no overview of the flow of patients, many care facilities came close to being overwhelmed.



COA MG Goh Si Hou and CDF LG Melvyn Ong being briefed on how Medical Operations Task Force improved situation awareness by fusing multiple sources of epidemiology data and healthcare capacity data.

Source: MINDEF



In the early days when COVID-19 struck Singapore, confirmed, suspected and “clean” cases were managed via targeted approaches. Many different facilities were set up for different purposes such as testing, isolation and treatment. The large number of cases required painstaking tracking and coordination, as well as resource-intensive transportation.

There was also the challenge of how to efficiently transport patients from one facility to another. Without centralised control, the emergency transportation (or conveyance) system was on the verge of being overloaded. There was an urgent need to develop comprehensive situation awareness of the stock and flow of COVID-19 patients across the care facilities and to set up a centralised emergency transportation system. The SAF task forces also had to look beyond these immediate needs and anticipate operational demands so that we could gain the initiative in the fight against the virus.



SAF personnel supporting the conveyance of migrant workers across recovery and isolation facilities.
Source: MINDEF



SETTING UP THE MEDICAL OPERATIONS TASK FORCE (MOTF)

The need for an integrated operations hub was clear. So MOTF was set up to support MOH in carrying out three key tasks. The first was to develop a “single source of truth” on the numbers and movements of COVID-19 patients, by aggregating the data from multiple sources to a single, reliable source. The second was to coordinate the allocation of medical resources and transport operations across all entities. The third was to anticipate operational demands to minimise the risk of being overwhelmed by an unpredictable, deadly enemy. In order to carry out these tasks, MOTF would have to develop technology solutions, as part of a larger ops-tech initiative, to track and monitor COVID-19 cases among migrant workers as well as resource utilisation rates.

The Assistant Chief of the General Staff (Intelligence) (ACGS(Int)) COL Tan Cheng Kwee was given command of MOTF. Personnel from HQ Army Intelligence (Army Int) and G2-Army staffed this task force because of the analytical nature of its

mission. With the need to operationalise the task force as quickly as possible and to work closely with MOH, MOTF quickly set up shop in the Health Promotion Board (HPB) building near MOH. Associate Professor Raymond Chua, Deputy Director of Medical Services (Health Regulation Group) of MOH, joined MOTF as Deputy Commander.

A team from 6 Div who had served in HSTF was brought to the MOTF Secretariat to quickly establish MOTF’s battle cycles, operating processes, and links with adjacent agencies to open the information channels. HQ Army Int and G2-Army personnel made full use of the information flows to immediately start sense-making. Personnel from JTF(A) joined the MOTF’s current operations cell to plan daily transport operations.

Within a week of starting work, MOTF had ironed out the ownership of resources and every component of the entire transportation process chain with JTF(A). MOTF was now giving the SAF better situation awareness and enabling tighter coordination of effort and sharper concentration of force in critical areas.

A team comprising officials from the SAF and MOH briefing Senior Minister and Coordinating Minister for National Security Mr Teo Chee Hean on the set-up of the MOTF.

Source: MINDEF



From left to right: CPT Sabian Lim from HQ Army Int, Mr Chung Wai Kong from DSTA, and MAJ Henry Lee from Systems Integration Office. They developed a command and control system which helped agencies to plan and coordinate the medical care for migrant worker COVID-19 patients. Source: MINDEF

TAKING STOCK AND REGAINING CONTROL

COL Tan co-chaired daily MOTF meetings with MOH's Director of Medical Services, Associate Professor Kenneth Mak, to direct the operations. At the beginning, the top priority was to address the lack of a comprehensive overview of the flow of COVID-19 patients. MOH needed an accurate and timely situation picture to make policy decisions. MOTF knew that it had to present the information in a way that was easy to understand and helpful to the decision makers.

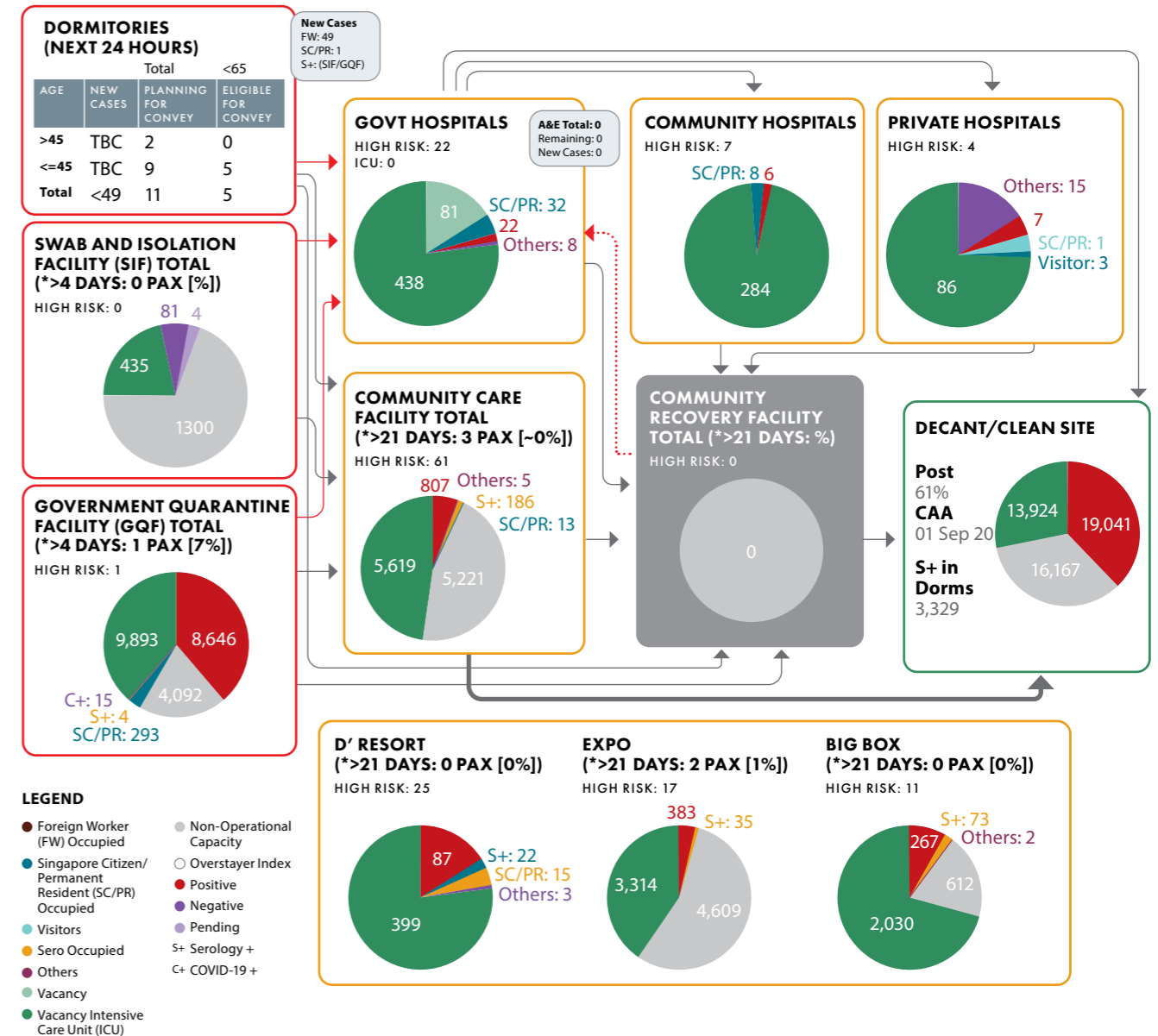
The team worked hard to build the Operations Dashboard. This was something

military personnel were familiar with and they quickly established a frame, pulled data from the hospitals, dormitories, and recovery and isolation facilities, and put the dashboard to work. The task force knew they were not going to get it right the first time. "Honestly, at first the margin of error was quite high. But we nailed it down before long," COL Tan recalled. A mere week and a half after it was operationalised, the very first iteration of the dashboard received positive feedback from the Cabinet and Multi-Ministry Task Force. This dashboard would be an important step to regaining control of the COVID-19 situation in the migrant worker dormitories.



SAF and DSTA personnel who developed technology solutions in the MOTF's Ops-Tech Centre.
Source: MINDEF

MOTF CASE FLOW OPERATIONAL DASHBOARD



The MOTF case flow operational dashboard provided a comprehensive overview of the daily caseload and work flow from multiple sources of information.
Source: MINDEF

DATA COLLECTION — “RUBBISH IN, RUBBISH OUT”

MOTF understood only too well the basic principle of data management – rubbish in, rubbish out. It had to make sure that the inputs were as accurate as possible so that the dashboard would be functional and useful. This was a mammoth task with many operational challenges. Initially, the task force did not even know where to pick up migrant worker patients to transport to CCFs and CRFs. It was difficult to locate them because many had been moved out of their registered dormitories. Although their employers had to update the registered residence within 14 days, this was far too slow for MOTF to convey them to the right care facility in a timely manner. Clearly, there had to be a system to track COVID-19 patients, and clean up the data so that MOTF could act on it.

Taking a leaf from the Army’s experience when it moved its tracking of NSmen through numerous nominal rolls to more digital means, MOTF quickly shifted to a similar digitalisation strategy with the Migrant Worker COVID tracker. This was designed so that every individual’s data and

movement could be easily updated, even if he could not do it himself. MOTF explored various ideas, from wristbands to QR codes, and eventually settled on the Migrant Worker Conveyance Monitoring (MWCM) mobile app. This tracked the movement of a COVID-19 infected migrant worker by scanning the barcode of his Foreign Identification Number and updating the system on his location and status of conveyance.

The MWCM app was deployed to all Swab and Isolation Facilities, Government Quarantine Facilities, CCFs and decant sites. The system was also integrated with apps such as MOM’s Tenant Management Module, which captured information on a migrant worker’s move into and out of a dormitory.



Migrant worker health status and movement details are entered into a web-based app and the information is consolidated at the Operations Dashboard automatically for planning and tracking purposes.

Source: MINDEF



The Migrant Worker Conveyance Monitoring mobile app.
Source: MINDEF

Unfortunately, the MWCM app was not widely used at first by managing agents at the facilities so there were gaps in information on the workers’ location. To encourage managing agents to use the app, the team added onboarding and monitoring features that managing agents would find useful. They followed up closely to get regular feedback from the managing agents and provide assistance. Eventually, the MWCM app became the one-stop data collection method that simplified and organised COVID-19 data inputs for the migrant worker population.

The agile development and scaling of digital solutions such as the MWCM app

was possible because of the strong ops-tech partnership between the SAF and DTC. Knowing that technology would be a key enabler to carry out its mission, MOTF had brought in DSTA engineers from the start to form the nucleus of its ops-tech team. DSTA spearheaded the digital system architecture and design with operational input from the SAF, and reached out to industry partners such as ST Engineering and NCS Pte Ltd to develop, integrate, deploy and maintain the systems. This strong ops-tech partnership generated tailwind for MOTF in its race against the clock to safeguard the national healthcare system from being overwhelmed.

DATA FUSION AND SENSE-MAKING — IDENTIFYING THE “SINGLE SOURCE OF TRUTH”

With the data collection processes in place, MOTF had to figure out a way to incorporate the data in the digital platforms that the task force was using. This took dedication and hard work by the personnel in the newly formed Data Fusion Centre (DFC). They started work at 0800 hrs to prepare for the first huddle of the day at 1000 hrs – which gave them only two hours to “close all the accounts” from the previous night and provide an updated situation picture.

The operational challenges of this task were daunting. The data came from multiple sources, with different time-stamps and sometimes in conflict with other data. Some were raw data while others had gone through some form of processing. As the centres had different operating times, there were time-lags in data processing and always people in transit. The various databases had to be synchronised, so the team had the arduous task of assessing all the data for reliability and accuracy. Lags and discrepancies had to be accounted for and loose ends reconciled in order to establish a “single source of truth” that would be useful for making decisions and formulating policy.

To meet the vital need to synchronise the databases, DFC had to have a good grasp of the various data cycles, a data cycle being the sequence that each unit of data goes through from the time it is generated to the time it is applied. As a central database, DFC had to fuse data from a large number of stakeholders and integrate more data

cycles in order to provide an accurate and coherent situation picture. The different data cycles of DFC’s partners had to be aligned with a single common reference point, and timestamped to indicate when the data was collated and represented.

It was gruelling work. The data had to be processed manually, and the team often



worked into the wee hours of the morning, before starting a new day of work just a few hours later. But within two months, it had managed to develop an automated solution and dashboard which presented an overview of the entire COVID-19 medical operations. With this “single source of truth”, the various task groups

in MOTF could now operate together seamlessly. This dashboard was also helpful to other task forces and agencies for their planning and operations. Whenever there were data discrepancies, DFC would seek clarification from the relevant agencies. This helped to uncover causal factors and derive corrective actions.



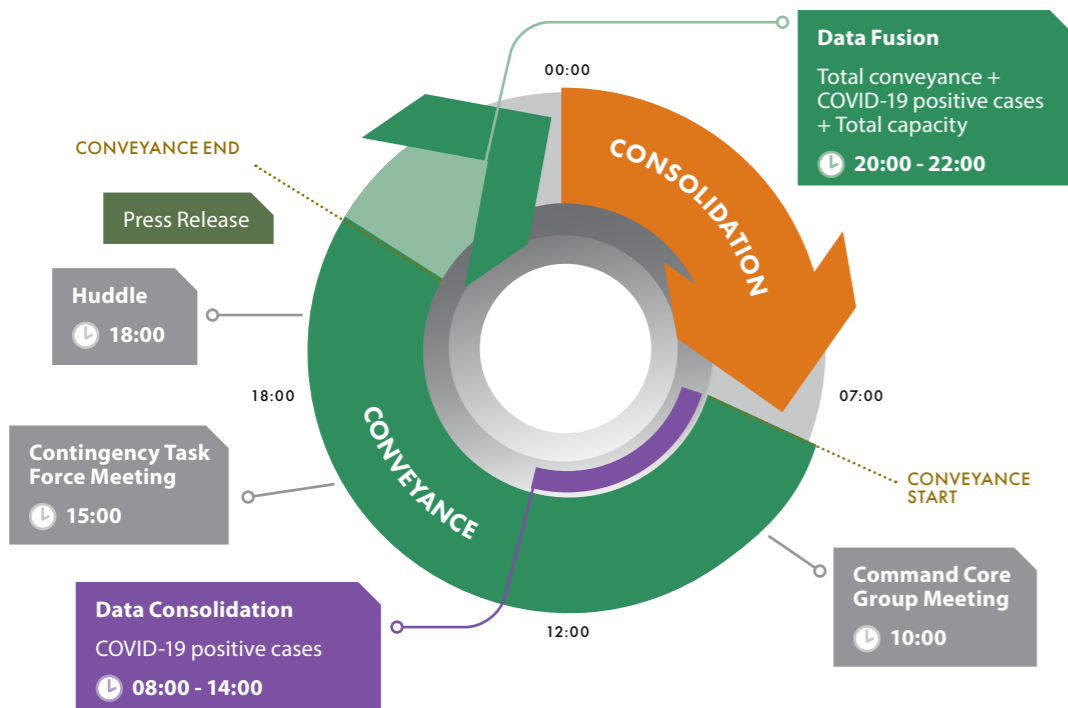
A Data Fusion Team having a quick pow-wow at the start of the day.

Source: MINDEF

The MOTF Data Fusion Centre daily operations.

Source: MINDEF

MOTF'S DATA CYCLE



DATA-BASED PROJECTIONS — MOVING AHEAD OF THE CURVE

The success of the dashboard gave MOTF confidence to go even further and look beyond managing the situation day to day. It quickly developed projections to predict chokepoints and excess capacities so that it could forecast supply and demand for task force operations. For instance, to optimise the movement of COVID-19 patients, it developed a matrix to prioritise admission to medical and care facilities, taking into consideration factors such as the patient's medical risk profile. Using the projections, MOTF also worked with JTF(A) to adjust

the testing schedule so that potential spikes in the load on medical facilities would be better managed.

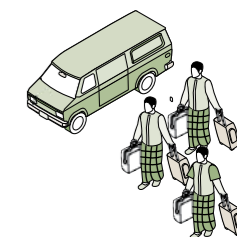
The data projections also helped in strategic resource planning. At one point, when MOH was considering adding more CCFs and CRFs for migrant workers, MOTF's projections convinced MOH to increase the number of recovery sites instead. This helped avert a chokepoint at CCFs. Allowing the migrant workers who were medically well but still tested positive to move to facilities with leaner medical staff meant that precious medical resources could be diverted to care for more seriously ill patients.

Indeed, data proved to be the new gold. Data fusion and data-driven decision making were critical for the success of MOTF's operations. The experience showed that with data fusion and sense-making elements, especially in operations involving multiple nodes, decision makers can have a clearer situation picture and tighter operational control. This enables them to make better decisions. For protracted operations, data can be trended over time to make projections. This is helpful for strategic planning and enables some level of prediction of how courses of action will pan out.

The experience in the COVID-19 fight showed that there must be clearly defined roles for the different groups of people who deal with data so they know what is expected of them. There should also be a clear structure for meaningful data-

driven decision making. It comes down to competencies in managing data, and data managers are just as important as data scientists. The MOTF team realised that it was not prudent to only have data scientists cleaning data. After the data is fused, data managers are required to manipulate the data and extract insights. Proper roles, responsibilities, and ops-tech structures must be established upfront to effectively harness the benefits of data.

The SAF must recognise the power of using data and harness it to solve problems as operations and missions become increasingly more complex. We have to improve our data literacy, get comfortable with making use of data, understand the challenges around the use of data and develop the structures to make effective use of data. Data analytics is one key tool that SAF leaders must be able to exploit.



180,000 migrant workers were conveyed across **153** COVID-19 facilities nationwide.

Data scientists in MOTF analysing data to aid timely decision-making. Source: MINDEF

**HOME CARE
BOUND**

After a year of combating the disease with stringent infection control measures, the Government began preparing Singaporeans for living with endemic COVID-19. More was now known about the disease and, more importantly, a high percentage of the population was now vaccinated. The new approach was to conserve critical hospital resources to ensure that high-risk cases and the acutely unwell would have a high level of medical care when needed. The primary providers of medical care for mild COVID-19 cases would be community doctors and recovery at home would be the default.

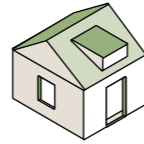


Prime Minister Mr Lee Hsien Loong addressing the nation on 21 October 2021 to explain why we had to prepare for living with endemic COVID-19.
Source: MCI

A mindset shift was also needed — COVID-19 patients with mild symptoms could recover from home safely, allowing limited healthcare resources to be allocated to more severe cases. Learning to live with endemic COVID-19 would also allow Singapore to open its economy and borders.

So, on 30 August 2021, MOH launched a pilot Home Recovery Programme (HRP) for 21 mildly ill COVID-19 patients to recover at home instead of in hospital or CCFs, after ensuring that their household and social conditions were suitable. A small team from MOH served as dedicated Home Recovery Buddies to the patients. This small-scale pilot programme was a success.

But then COVID-19 cases began rising rapidly with the emergence of the more infectious Delta variant. This was a time of high anxiety for Singaporeans as Delta was more virulent than the Alpha, Beta and Gamma variants prevalent up to that time. Those with mild respiratory symptoms rushed to Accident & Emergency departments, and many who feared passing the virus to family members wanted to be housed at CCFs. Fortunately, the number of serious cases requiring oxygen supplementation or Intensive Care Unit (ICU) treatment was mitigated by the population’s high vaccination rate. But the high total case count made it urgent to implement Home Recovery as the default mode for COVID-19 patients who were mildly ill.

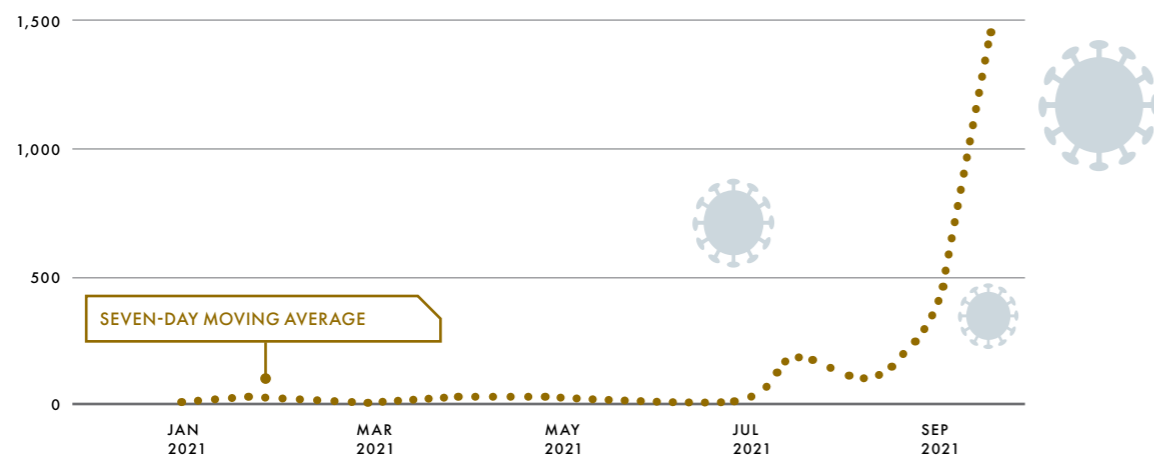


MOH initiated a pilot programme on 30 Aug 2021 for 21 mildly ill COVID-19 patients to recover at home.



COL Tong Yi Chuen chairing a meeting in the Home Recovery Task Group.
Source: MINDEF

SINGAPORE’S COVID-19 OUTBREAK RISE IN DAILY REPORTED INFECTIONS



Infection numbers rose in September 2021 because of the Delta strain.
Source: MOH COVID-19 Statistics

The programme for home recovery had to be expanded nationwide at short notice, and the MOH team faced difficulties coping with the sudden surge in cases. The public’s anxiety and frustration grew when those recovering at home or living with a COVID-19 patient could not get information from the authorities on what they should do. MOH’s dedicated hotline could not handle all the daily calls. There were delays in the onboarding and discharge processes for COVID-19 patients. Those who had recovered were still being denied “Safe Entry” to workplaces and public amenities. There was also a growing need to cater to groups with medical and special needs, such as pregnant, paediatric, immunocompromised, disabled and palliative care patients. On top of these problems, the Microsoft Excel and email-based IT systems tracking the transfer of patients to suitable medical facilities could not cope with the increase in cases.

STANDING UP THE HOME RECOVERY TASK GROUP

It was under those circumstances that the SAF’s Home Recovery Task Group (HRTG) was set up. The mission was clear: as Singapore transitioned to living with COVID-19 as an endemic disease, HRTG would help MOH to strengthen their home recovery system so that all population groups covered by the HRP would be given the resources they needed for home recovery. HQ Singapore Combat Engineers was activated, and on the evening of 24 September 2021 Chief Engineer Officer COL Tong Yi Chuen alerted his team to their impending mission. They attended the first virtual briefing with MOH that night and placed their sub-units on standby. The next day, COL Tong and his core team reported at Harbourfront Centre and were briefed by MOH officials on the current situation and processes. They also discussed how HRTG could contribute, both immediately and over the longer term.

After a deliberate Mission Analysis, the team identified three focus areas for HRTG. First, it would quickly build up call centre capabilities to address public concerns. Second, it would review current processes and then implement a scalable HRP nationwide. Third, it would incorporate technology solutions so that there could be a more sustainable use of manpower and resources over the long term.

The next four days were spent planning HRTG's structure and manpower requirements, and coordinating training. HRTG was now ready to go, and on 29 September 2021 it started operations in the call centres. 48th Battalion Singapore Armoured Regiment (48 SAR) and 38th Battalion SCE (38 SCE) assisted in the Inbound Call Centre, fielding calls from the public about the HRP. The other sub-unit,

35 SCE, assisted in the Outbound Call Centre, which reached out to register COVID-19 patients on HRP and guided them through the home recovery process as Home Recovery Buddies.

Planners from the earlier task forces readily leaned forward to help HRTG HQ. COL Liew Kok Keong, who had served in the HSTF and was later deployed to MOTF as Chief-of-Staff, regularly shared his operational experience with HRTG. MAJ Nicholas Tjandra, who also was from HSTF, served in HRTG HQ as Head Anticipatory Operations Centre to do forward planning, monitor policy developments and their impact on HRTG operations, and foster partnerships with adjacent MOH and inter-Ministry task forces to strengthen the HRP. Like MOTF, HRTG tapped the collective experience of COVID-19 operations "veterans" across

COVID-19 operations "veterans" across the SAF sharing their operational experiences with the HRTG Command Team, comprising representatives from the SAF and MOH's Case Management Task Group and Quarantine Operations Task Group.

Source: MINDEF



ME5 Jonathan Ng, a solutions architect in the RSAF Innovation SWIFT Office, briefing President Mdm Halimah Yaacob on the HRTG's call ticketing system.

Source: MINDEF



The RSAF Innovation SWiFT Office developed digital solutions that enabled large amounts of data from different parts of MOH to be seamlessly integrated, as well as an automated messaging system.

Source: MINDEF

the SAF to rapidly build baseline capability and processes so that they would have more bandwidth to focus on novel and emerging challenges.

In parallel, resources and expertise from across the SAF and many government agencies were pooled so that there was data for the HRTG to measure its effectiveness. The team also worked with the RSAF Innovation SWiFT Office, GovTech's Open Government Products Office, and MOH's Information Fusion Centre to consider technology solutions so that the rapidly rising case numbers could be handled efficiently.

HRTG handling the HRP effort would require an empathetic approach. Emotions were involved. The public was frustrated and their confidence in the Government's handling of COVID-19 was affected. The team's MOH partners were fatigued after their long battle with COVID-19 and disheartened by the public's harsh criticisms. It was necessary to be sensitive and show empathy to both the members of the public seeking help and advice, as well as the MOH colleagues who were hoping that HRTG could bring fresh perspectives and energy to the cause.

HRTG played the role of the supporting force that was "here to help" their MOH colleagues, especially as they would be taking the operational system back to MOH at the end of the HRTG deployment. The pilot programme had worked, so it was necessary to be sensitive to MOH's perspective on the HRP. It was with this sensitivity that the HRTG team set out to partner MOH in strengthening the established HRP processes, to scale it up much more extensively and rapidly than was originally planned for.



PUTTING PATIENTS FIRST

HRTG quickly identified the need for a critical shift in order to restore public confidence in the HRP. Instead of focusing on clinical outcomes, HRTG took a human-centric approach that was more relationship-based, handling one patient at a time. This patient-first mindset would drive all of HRTG's operations, especially in catering to vulnerable groups which required tailored and differentiated care, and in managing appeals and outliers. With fear and anxiety colouring the minds of COVID-19 patients and their families, HRTG knew that it was not enough to have a robust system. Empathetic communication with the patients was critical if the HRP was to be a success.

NSFs manning hotlines at the Home Recovery Programme call centres.

Source: MINDEF



Home Recovery Buddies, comprising a mix of MOH and SAF personnel.

Source: MOH Facebook Page

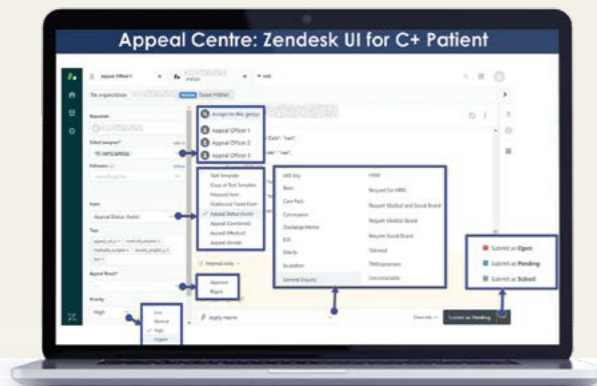
The first order of business was to establish a Case Management System so that all cases could flow through and be handled appropriately. The existing call centres were beefed up so that check-ins could be expedited and there could be confidence in the accuracy of the information collected. Hotlines were expanded to meet the increased requests for assistance and redress. All the additional manpower came from full-time National Servicemen (NSFs) who were activated at short notice and quickly trained. An important part of their training was to learn how to speak with empathy to callers.

The first cohort was tasked to tackle the fast growing backlog of cases. They contacted COVID-19 patients who had recovered and those who were still ill and answered their questions, equipped with a list of Frequently Asked Questions (FAQs) cobbled together

from the MOH websites. Although the FAQs were continuously updated and refined, the NSF Home Recovery Buddies inevitably had to grapple with information gaps while trying to answer some questions. Challenging cases were escalated to their superiors and policy guidelines clarified with their MOH colleagues. They helped one another by speaking to callers in their mother tongues when the callers could not communicate in English. Their empathy was tested by difficult callers, but they supported one another in managing difficult calls, working as a team, sharing information and tips for handling difficult callers. While their patience was tested when they were abused over the phone, they could understand the fear and anxiety of the callers and this helped them to stay calm and professional.

Some of them (patients on the HRP) don't know what's going to happen or wonder why no one is telling them where to go. I could see where their frustrations and anxieties were coming from, and I would try to see what I could do to help them.

CPL Luth Danish
NSF from 35 SCE



The Zendesk interface.

Source: MINDEF



HRTG also had to deal with patients who were frustrated over being passed from one agency to another during the home recovery process. To mitigate the problem, HRTG implemented *Zendesk*, a centralised cloud-based system to manage HRP patients' journey from notification to discharge. The design of *Zendesk* placed the patient's experience at the heart of the system, and allowed HRTG to follow up efficiently with patients throughout the process, including on their unique needs and requests. This

was especially important for patients who needed customised care by social agencies. SMS notifications allowed all patients to be onboarded and reminded of medical follow-ups. With *Zendesk*, no case would fall between the cracks when transiting between Cells and Centres.

It soon became clear to HRTG that it was not possible to manage every case in the same way, as patients had many different social and medical needs. The team implemented a differentiated care approach.

Home Recovery Buddy CPL Luth Danish at work.
Source: MINDEF



SV1 Lim Ai Buay Ivy from the SAF Volunteer Corps in the Data Management Team, in the Data Management Team, working on updating data in time for quick analysis.

Source: MINDEF

Patients identified as needing “Basic Care” were a majority; they were well supported and needed only basic information and access to medical resources. Those identified as needing “Enhanced Care” were from vulnerable and high-risk patient groups with more medical or social needs, such as the elderly, pregnant women and children. Significant efforts were made to ensure that such patients were not left out in the triage or appeal process, and would be given greater attention and resources through the Care Management Centre established by HRTG.

The Care Management Centre was formed when Ms Teoh Zsin Woon, Second Permanent Secretary, Public Service Division (PSD), offered HRTG resources and expertise for social outreach to vulnerable groups. The centre set up inter-agency partnerships to support vulnerable

patients. Dedicated volunteers from PSD and the Silver Generation Office made daily checks on elderly patients. Community partners, such as People’s Association, the Agency for Integrated Care and Ministry of Social and Family Development (MSF) helped PSD volunteers in providing support for HRP patients at the constituency level. For patients with special needs, HRTG worked with MOH to expand HRP support to groups such as the sensory-impaired, illiterate or handicapped individuals. The cooperation with relevant handicap associations and literacy foundations to improve patient support continued after the SAF handed the operations back to MOH.

HRTG sought to better understand the demographics of the Singapore population so that it could re-engineer to improve its support structure as needed. It worked hard to ensure that every patient received medical attention. The Data Management Centre, which was set up to help HRTG make better decisions using data on the HRP landscape, put in great effort to ensure that all patients were accounted for. Using the SAF Action Learning Process, every HRTG centre was constantly cross-learning and reviewing its processes whenever there were unique cases.

HRTG also reviewed the process for appeals, and established an Appeals Centre to better manage patients who were not eligible for HRP but who wished to recover at home. The Appeals Centre had to carefully balance between the patient’s autonomy and risks to public health. Managing appeal cases was a complex operation requiring a fine balance of sensitivity and firmness. More experienced civil servants from across PSD staffed the Appeals Centre, and swiftly attended to the backlog and surge in appeals.



Scan this QR code to hear the story of a COVID-19 patient on the Home Recovery Programme.

DELIVERING MISSION OUTCOMES

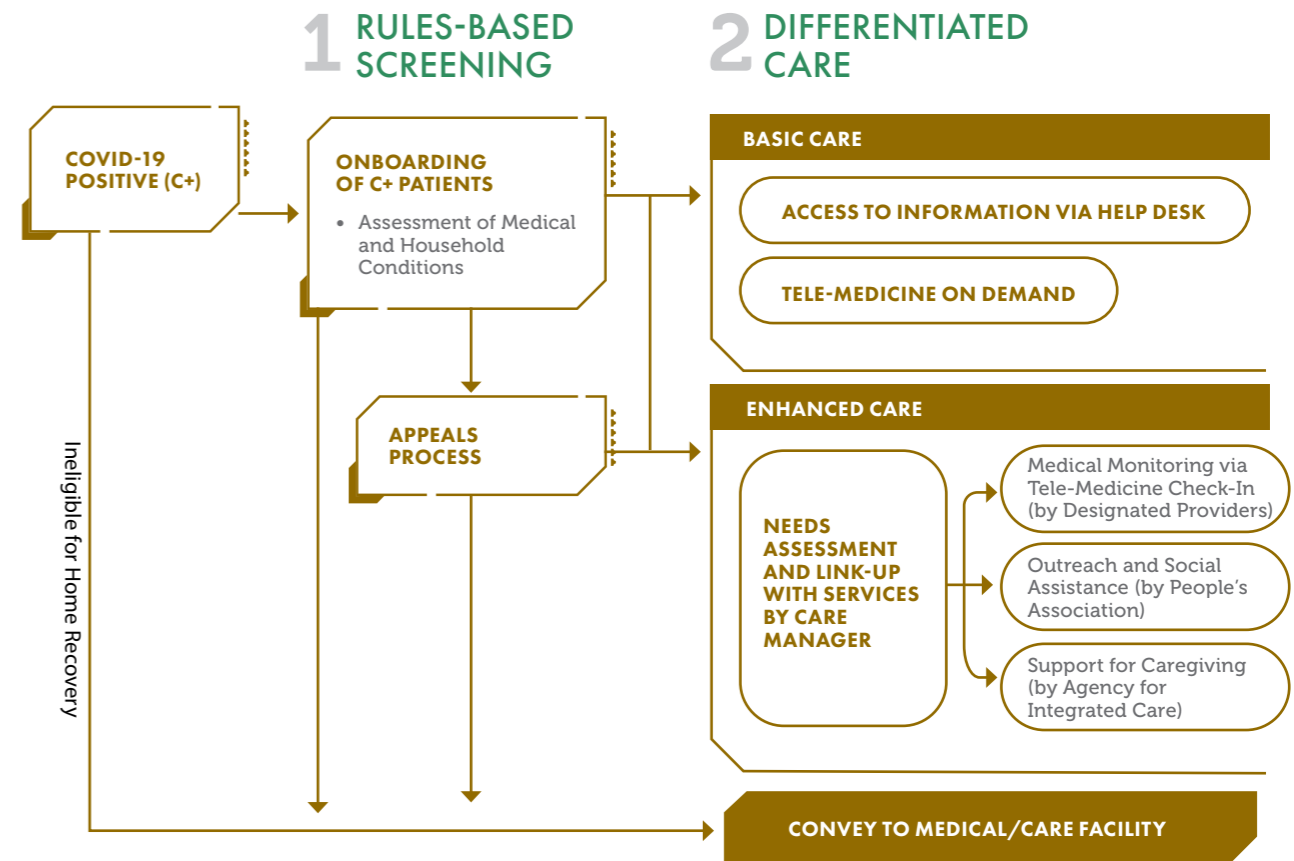
HRTG’s work on redesigning the HRP for nationwide implementation was an important part of the WoG effort to transition Singapore to a state of living with endemic COVID-19. There were four phases in HRTG’s operations. In Phase I (29 September to 10 October 2021), HRP Call Centre operations were expanded to meet the surge in public

queries and to quell anxieties. Phase II (11 to 24 October 2021) focused on setting up the patient support system. In Phase III (25 October to 7 November 2021), internal processes were streamlined and external linkages were strengthened to maximise operating efficiency and sustainability. Phase IV (7 to 22 November 2021) focused on the transition to steady state with home-based recovery and self-care as the norm.



HRTG fulfilled up to **99%** of engagement requirements from HRP patients.

REDESIGNED HOME RECOVERY PROGRAMME





Handing over the HRTG Operations to MOH.
Source: MINDEF

HRTG'S RECORD



Over the eight and a half weeks of its operations, HRTG assisted over 69,000 Home Recovery Helpdesk callers and onboarded 106,003 COVID-19 patients in the HRP via call centres. At its peak, every day the call centres were onboarding up to 3,500 patients and maintaining a 99% hotline engagement rate in addressing questions from patients on HRP. This compared with 50 HRP patients being onboarded and 15% of queries being answered daily before HRTG came in to scale up the operation.

Taking an empathetic approach was a key factor for HRTG's success in rapidly scaling

up the HRP to meet the demands and showing quick results from its operations. Showing empathy and sensitivity smoothed the working relationships with MOH and other government agencies at a time of great stress and anxiety. HRTG was then able to produce quick and efficient solutions to improve many aspects of the HRP, including customising to meet the diverse needs of patients. An empathetic touch also characterised the interactions between HRTG and the public and helped calm the public mood and restore confidence in the Government's handling of the COVID-19 pandemic.





IMPACT ON THE SAF'S TRAINING AND OPERATIONS

Even as the SAF was going all out in its support to the WoG fight against COVID-19, it also had massive challenges on the internal front working out effective ways to carry on with training and operations. SAF leaders can draw lessons from the experience for our transformation to SAF 2040.

CHAPTER 7

BUSINESS AS USUAL

118

CHAPTER 8

COMMAND IN A COMPLEX ENVIRONMENT

132

CHAPTER 9

MANY STEPS IN ONE BIG STRIDE

148

CHAPTER 10

AGILE RESPONSES

160

SECOND

TO

NONE

BUSINESS AS USUAL

It was seven months after the outbreak of COVID-19 in Singapore. LTC Daniel Perh, Commanding Officer (CO) of 6th Battalion Singapore Infantry Regiment (6 SIR), sat in his office in Maju Camp and scrolled through yet another new COVID-19 Ops Directive on his computer. "Physical cohesion activities will continue to be prohibited...". He glanced at the whiteboard. Golden Jubilee Milestone Parade? Cancelled. Bowling Cohesion? Nope. Archery Tag in camp? Nope. One by one, his list of team-building ideas scribbled on the board had to be struck off – until nothing substantial remained.

He was concerned that his soldiers' sense of belonging and camaraderie would be eroded, because to him, "Traditional gatherings like makan sessions and sports are invaluable shared experiences that bond the men and women in the battalion." It seemed that these bonding activities were no longer possible to safeguard the health of his people.

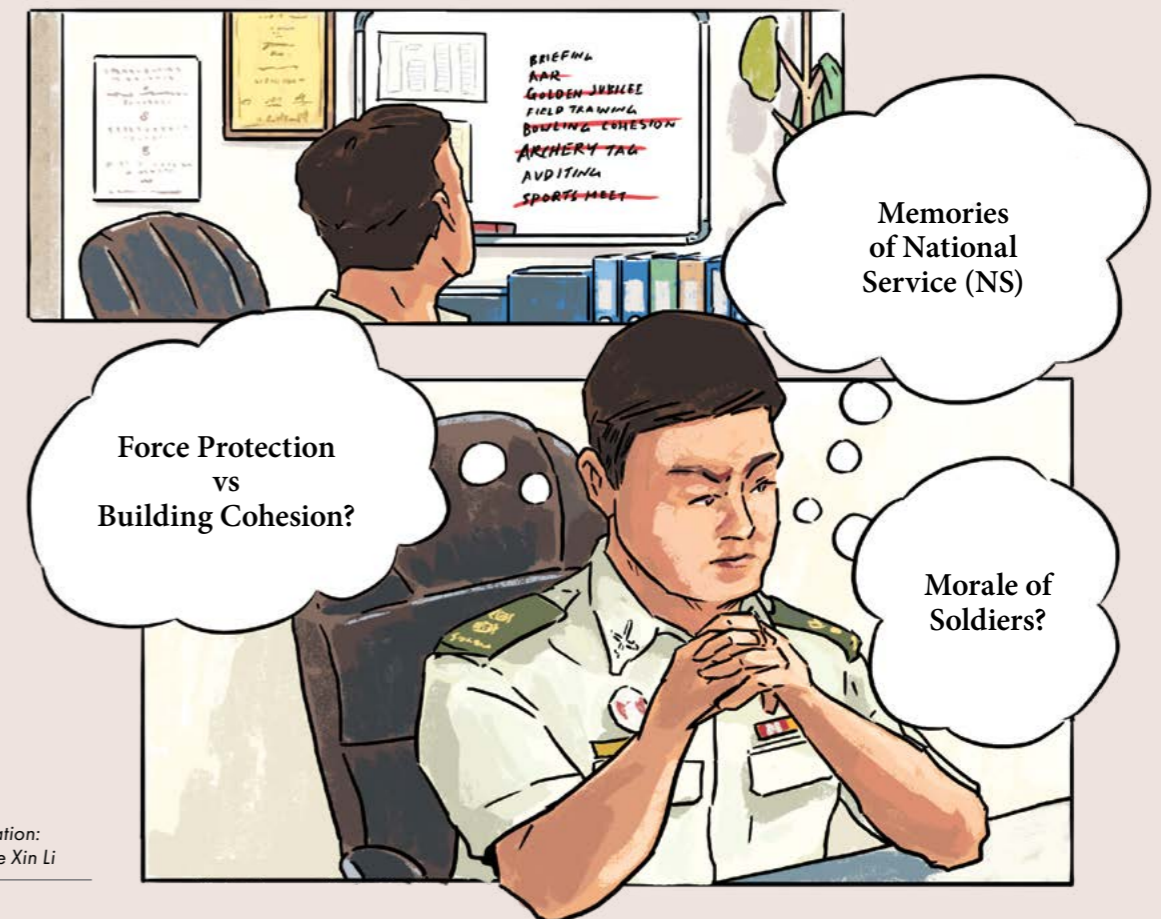


Illustration:
Mr Lee Xin Li

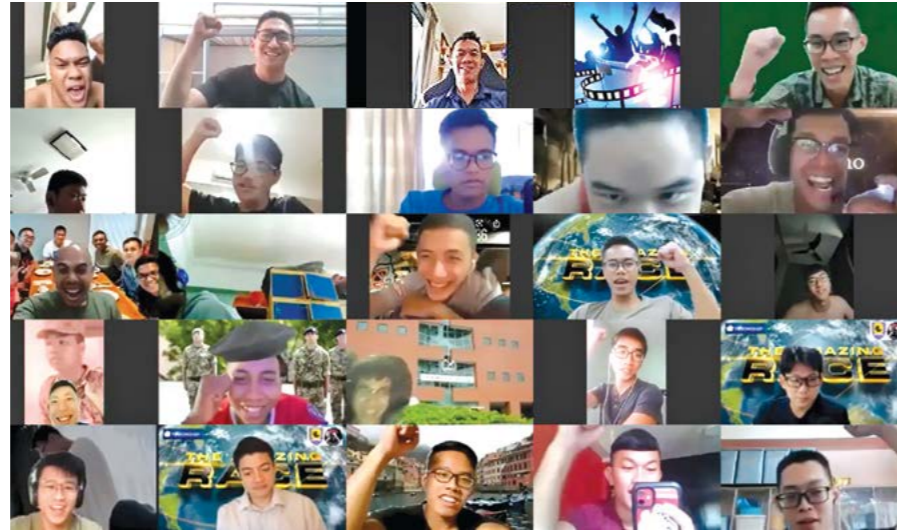
GOING VIRTUAL

When COVID-19 struck, this was a problem for many SAF commanders as the routine training, operations and bonding activities posed a potential health risk to our soldiers. Would we have to choose between the two? But the answer was clear – it was not *either-or* but *and*. We had to do both.

As LTC Perh recounted, “Sacrificing either need was not an option. It’s our duty to train the battalion to be operationally ready within the two years of full-time National Service, and the team firmly believed that cohesion was an absolutely necessary building block for all of the battalion’s other achievements to be built upon.” Having settled that fundamental principle, his team huddled to work out ways to build cohesion without in-person interactions.

Using Zoom to conduct activities was one obvious solution. Knowing the popularity of mobile games among young people, someone suggested an e-sports competition. LTC Perh noted that “We had to find ways to continue generating shared experiences and reinforcing shared identity, and video conferencing and social media became invaluable tools for the command chain to reach out to the soldiers and their families.”

LTC Perh and his team knew that virtual interactions could not have the same impact as interactions in person for forging bonds. Nevertheless, they tried their best to look for creative ways to get around the restrictions brought by the pandemic. They did not allow themselves to get stuck in a dichotomous mindset, in which goals seem mutually exclusive. Instead, they adopted a bridging mindset and focused on compatible and, even better, mutually reinforcing goals.



Commanders and soldiers of 6 SIR coming together in a virtual “Amazing Race”.
Source: MINDEF



CARRYING ON, PROTECTED

Air and land cross-border travel slowed to a crawl in the early days of COVID-19, but maritime trade continued to flow steadily, transporting goods and critical supplies to ports all over the world. Maritime trade is critical for Singapore’s economy and we have to ensure the security of our waters and the ships that pass through. This important mission is undertaken by, among others, the Republic of Singapore Navy’s (RSN) Accompanying Sea Security Team (ASSET).

LTC Brandon Choo, CO of 180 Squadron of the RSN’s Naval Diving Unit, had to ensure that his team of ASSET troopers, comprising both Regulars and NSFs, could continue to board merchant vessels calling at our port without being exposed to a greater risk of COVID-19.

So LTC Choo worked closely with the Maritime Security Task Force and HQ RSN to explore new concepts of operations. ASSET adapted its risk-weighted approach in the selection of vessels to board. LTC Choo and his team made sure that the ASSET troopers, being essential frontliners, were among the first in Singapore to be vaccinated against COVID-19. They also reviewed their tactical procedures to include safe distancing measures and regular testing, and integrated enhanced protective equipment, such as N95 masks, for their operations. With these protective measures, ASSET troopers carried on with their boarding operations while remaining safe from COVID-19.

As frontliners, ASSET troopers were among the first people in Singapore to receive the COVID-19 vaccine.
Source: MINDEF



ASseT troopers climbing up a ladder to board a merchant vessel for a spot check.

Source: MINDEF

WE'LL MAKE THINGS WORK

In the early days of the pandemic, the RSN implemented comprehensive measures to ensure that potential COVID-19 cases were quickly detected, their contacts traced, and they were isolated outside of their ship. If a COVID-19 case was detected when the ship was at sea, the ship had to return to harbour – unless it was deployed for a critical operation or overseas exercise, in which case even more safeguards would be taken to minimise spread among the crew.

For RSS Supreme, which sailed to Hawaii in June 2020 to participate in the Rim of the Pacific Exercise (RIMPAC) 2020, this meant that there would have to be adaptations to the operations on board. She was going to the world's largest maritime military exercise and this would be the SAF's first engagement with foreign militaries since the start of



Armed ASseT troopers from 180 Squadron play an important role in protecting our sea-borne trade, as more than 1,000 ships pass through the Singapore Strait each day.

Source: MINDEF



RIMPAC 2020 participants sailing in formation.
Source: MINDEF



Shipboard isolation (top) and quarantine (below) facilities with separate ventilation air flow circuits on board RSN ships to enable Recover@Sea.
Source: MINDEF

the pandemic. It was just as important to protect our sailors from the virus as it was to focus on mission success. Some living spaces on board were repurposed as isolation and quarantine facilities in case of an outbreak. The crew was trained to handle more complex engineering contingencies in case some members came down with COVID-19. Large-scale and live planning conferences were replaced by weekly virtual huddles to allow all countries to respond more quickly to COVID-related changes. With the robust planning and a comprehensive set of safety measures, RSS Supreme was able to complete the deployment successfully and safely.

Back home, as the COVID-19 situation developed, the RSN worked hard on resolving the problem of how to carry on full operations while managing the risk of infection. The subsequent emergence of the more transmissible and less virulent Omicron variant, and a young and fully-vaccinated sailor population that was regularly screened, gave the RSN leadership the confidence that COVID-positive sailors would be unlikely to develop serious complications. While the HRP at the national level gave some assurance that recovery in place was workable, there was a significant difference in that a ship accommodated many more people living in close proximity within a confined space.

After carefully monitoring the evolving conditions, and equipped with the experience from RIMPAC 2020, the RSN was convinced that COVID-positive sailors could similarly recover safely on board ship while out at sea. Recover@Sea was implemented in November 2021. There was a solution because the RSN did not settle for an *either-or* outcome. It was possible to be operational while also ensuring that the sailors' health would not be jeopardised.

One-way ventilation air flow system directing contaminated air out of ships to enable Recover@Sea.

Source: MINDEF



A SHIFT IN MINDSET

There were other instances where commanders across the SAF had to find ways to meet conflicting objectives when the pandemic affected their normal routines. Units such as 3 SIR, 3rd Battalion, Singapore Guards and 40 SAR, to name a few, continued their rotation training and completed operational evaluations. Training institutes conceptualised new modalities locally to replace overseas exercises.



Scan this QR Code to see the successful conduct of ATEC Stage 2 Evaluation by 3rd Battalion, Singapore Guards despite COVID-19 restrictions.

Cohorting was important for ensuring continued operational readiness. This mitigated the risk of COVID-19 clusters derailing key operational functions within the SAF. In the COUs of the RSAF, it provided for redundancies while maintaining a sustainable tempo for the airmen on duty and on standby. In Command, Control, Communications, Computers and Intelligence (C4I) units, analysts and operators adapted their operating models and deployed across multiple locations while maintaining seamless integration and ops continuity. As training exercises which used to be conducted overseas were now carried out locally, engineers and technicians across the SAF worked on ensuring a high state of readiness of equipment and platforms to support higher local training demands, while reorganising the workshop spaces to allow cohorting.

Soldiers from 16th C4I Battalion completed their Army Training Evaluation Centre (ATEC) Stage 2 Evaluation in June 2021 during Phase 2 Heightened Alert, by implementing SMMs during training.

Source: MINDEF



These were a few examples of how SAF leaders met the challenge of COVID-19 head-on and found ways to enable “business as usual” in operations. And so the SAF could continue to train, maintain operational readiness, and safeguard Singapore’s peace and security 24/7 even as it dedicated significant resources to supporting the WoG efforts in the various COVID-19 task forces.

This mindset of rejecting trade-offs and accepting competing requirements and demands will become increasingly important for the SAF in the years ahead.

Business as Usual – the Army Half Marathon in a virtual and distributed mode in November 2021.
Source: MINDEF

ARMY55: #OurArmyFamily Virtual Exhibition 2020

The Singapore Army celebrates its 55th anniversary this year, marking 55 years of commitment and dedication to Singapore’s defence. The exhibition is themed #OurArmyFamily, and represents the strong camaraderie forged amongst soldiers and underlines the Army’s appreciation for support from Singaporeans and families towards soldiers for their contributions to national defence. Join us at www.go.gov.sg/OurArmyFamily from 1 to 13 Dec 2020.

55 YEARS OF OUR ARMY

Walk down memory lane and journey through the Army’s evolution from a 1st Generation to 3rd Generation Army through an interactive timeline. Submit appreciation messages to thank our past and present soldiers for their contributions to Singapore’s defence.

OUR STORIES

Read stories submitted by our soldiers during their time in the Army to better appreciate their contributions and dedication to Singapore’s defence. Share your NS stories and memories too.

YOUNG WARRIORS

Challenge yourself in Army-themed games and stand a chance to win attractive prizes. Download colouring sheets of your favourite Army platforms and equipment.

QUICK FACTS

- 7 Zones
- 7 Days of Showtime Programmes
- 16 Army Formations
(44 Army platforms & Weapons Systems)
- 4 Interactive Games
- Downloadable Content
- Daily Flash Giveaways



SOLDIER STRONG

Get strong and fit with us and learn about the Army’s physical training programmes and nutrition guides. Join the Army in our race to complete 55,000km in the #OurArmyFamily Run.

OUR FORMATIONS

Step into the different Army formation zones to learn more about the formations, their operational capabilities and their people. Download Army-themed mobile and desktop content to show your support for the Army.

OUR TRAINING GROUND

Experience training as a 3rd Generation soldier at our training ground through the first-person shooter game.

SHOWTIME

Watch Army-themed videos and participate in various activities with your family.

- Peek Into The Army
- Ask Me Anything
- Mass Fitness Workout
- Formation Fitness Challenge
- Army 55 Bake and Cook

Commemorating Army55 in 2020 with activities, such as the #OurArmyFamily run and formation fitness challenges, organised to promote participation in a distributed manner, alongside other digital events to engage audiences on the Army heritage and stories.

Source : MINDEF

TYRANNY OF THE OR AND GENIUS OF THE AND

In his book *Built to Last*, Jim Collins sought to answer the question: How do some companies prosper over a long time, through multiple product life cycles and multiple generations of active leaders, in a dynamic, global and multicultural world?

Of the many aspects of the companies that Collins analysed, one feature he noted was that such companies “do not brutalize themselves with the *Tyranny of the OR*”. He defined *Tyranny of the OR* as the purely rational view that you can have either A or B, but not both. Strong and resilient companies reject having to choose, for instance, between stability or progress, conservative practices or ambitious goals.

Collins found that the best companies instead embraced the *Genius of the AND* – which is the paradoxical view that allowed them to pursue both A and B simultaneously. Rather than choose between A or B, they figure out a way to have both A and B.

DOING MORE WITH LESS

While the solutions set out here were common-sensical and uncomplex, what was noteworthy was the mindset that enabled the SAF to carry on “business as usual” so that no conflicting demands had to be compromised. More than ever, as our operating environment is increasingly characterised by competing demands and tensions, SAF leaders must have a robust and resilient mindset. We must not start off by assuming that any solution will need mitigations and trade-offs. We have to shake off the “Tyranny of the OR” and not set limits on possibilities. It is good for our commanders to open their minds and even challenge first principles and deep-seated assumptions. Otherwise, they will have self-imposed constraints that make them miss opportunities to generate innovative solutions.

A robust and resilient mindset is critical as we work on force transformation. Our experience during the pandemic, when SAF units had to quickly adopt new concepts and tap on technology to achieve full outcomes, was most instructive. It points us to think hard about what we must do so that the SAF can continue to transform even in the face of constraints; can do more with less. Some of these efforts are already underway and provide a glimpse of how the SAF can meet seemingly competing objectives with tighter resources.

Manpower is one obvious area where we will have to do more with less, as the birth rate shows no sign of picking up. We are already reviewing the medical classification system, so that the focus is on the operational



effectiveness of each individual instead of the binary classification of combat-fit and non-combat-fit. We can then better deploy people to vocations that best match their functional abilities and skillsets. There is also much potential for exploiting technology to augment our people’s operational effectiveness. Such measures will enable the SAF to fully harness the capabilities of every single person, as well as to do more with fewer people.

Our operational mental models will also need to shift. Traditionally, military planning processes tend to simplify demands and chart courses of action with generally linear pathways to the objective,

so that it is easier for tactical action. But what confronts us now is a Volatile, Uncertain, Complex, Ambiguous and Disruptive (VUCA-D) environment in which multiple seemingly contradictory and competing objectives are commonplace and the norm. Instead of looking for trade-offs and compromises, the SAF must be adept and comfortable operating in such an environment. In the multi-dimensional battlespace of the 21st century, this shift in operational mental models is necessary if the SAF is to develop strategies and plans that enable us to win. *The Genius of the AND* will serve us better than the *Tyranny of the OR*.

9th Singapore Infantry Brigade successfully conducted their ICT in September 2020 by utilising a hybrid approach, to allow essential operations and planning to carry on despite SMMs/ COVID-19 restrictions.
Source : MINDEF

COMMAND IN A COMPLEX ENVIRONMENT

Less than three months after COVID-19 appeared in Singapore, after about 2,500 cases, the Government imposed the “Circuit Breaker” on 7 April 2020. Shortly after, the first confirmed case in an SAF combat unit surfaced. Vaccinations were still over half a year away and Antigen Rapid Testing was not yet available.

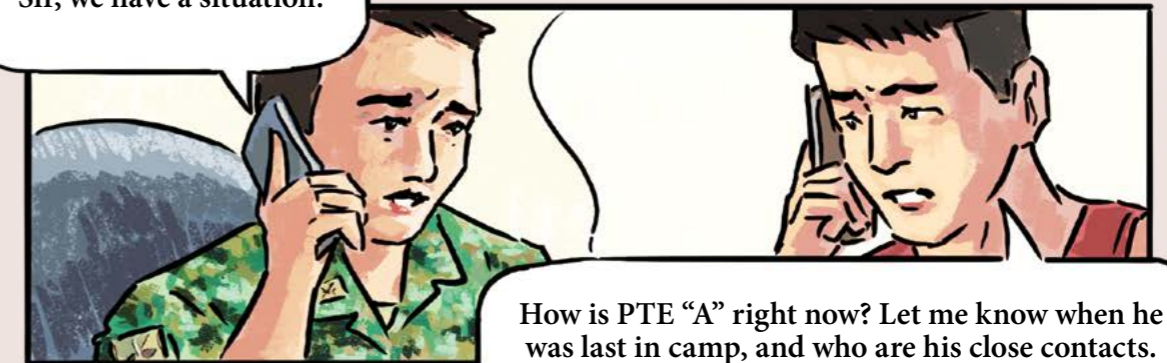
COVID-19 POSITIVE! WHAT DO WE DO NOW?

It was a Sunday and LTC Michael Enriquez, CO of 2 SIR, was enjoying time with his family. Until his phone rang. It was CPT Zimmer Chong, his Officer Commanding (OC) of Support Company. “Sir, we have a situation. PTE “A” from Mortar Platoon just tested PCR Positive!” The words rang in LTC Enriquez’s ears. After asking about “A”’s condition, he told CPT Chong, “We have no time to lose. Get the details and push up an incident report.” “Already on it, Sir,” CPT Chong replied.

LTC Enriquez quickly called MAJ Ian Vanderput, his Operations Officer. He was thinking, “Hell! I haven’t heard of a COVID case in a combat unit in the SAF yet. Is this the first one?” Then – “It’s Sunday! The battalion is booking in tonight!” The thought made his stomach churn. But before he could dwell on it, MAJ Vanderput’s voice came over the line. “Ian, it’s CO. We’ve got a COVID-19 case in Support Company. Here’s what I need you to do.”



Sir, we have a situation.



How is PTE “A” right now? Let me know when he was last in camp, and who are his close contacts. I’ll work with Battalion HQ to put together a consequence management plan.



Ian, we have a COVID-19 positive case in Support Company, I need you to work with Zimmer to gather all the details and inform Brigade HQ and General Staff Operations Centre.

Illustration: Mr Lee Xin Li

THIS IS WHAT WE DO

LTC Enriquez hurried back to camp to meet with his Battalion core group. His first priority was to determine the extent of infection in the battalion, and stem any panic or speculation among the troopers. Thankfully, an earlier Formation Executive Group meeting chaired by Commander, 3 Div BG Frederick Choo had already decided to allocate resources from across the Army to help units with consequence management. LTC Enriquez had registered his requests then, as well as through his direct superior, Commander, 3rd Singapore Infantry Brigade (SIB) COL Wong Shi Ming.

LTC Enriquez's first order of business was to carry out contact tracing. 2 SIR was supported by the SAF's Contact Tracing Centre (CTC). CTC had been set up to support the national contact tracing efforts, and LTC Enriquez was glad that the Army had now allocated dedicated contact tracing capacity to his unit.

However, he also knew that his troopers might be alarmed if they received a call directly from CTC. Some of them had already headed to the NCID on their own accord after hearing that PTE "A" was infected with COVID-19. Pushing out timely and accurate information to his troopers and their families would have to be the next priority.

While he had Army Information Centre (AIC)'s key messages prepared for such situations, LTC Enriquez knew they had to be tailored to sound more engaging and less formal for the situation at hand. So he tasked his OCs and Company Sergeant Majors (CSMs) to synchronise key communications lines and disseminate them across the battalion. As for the soldiers identified as close contacts of PTE "A", LTC Enriquez instructed CPT Chong and his CSM 3WO Desmond Xie to speak to them immediately, before CTC contacted them. "It's important that your troopers hear from you first," LTC Enriquez told CPT Chong.

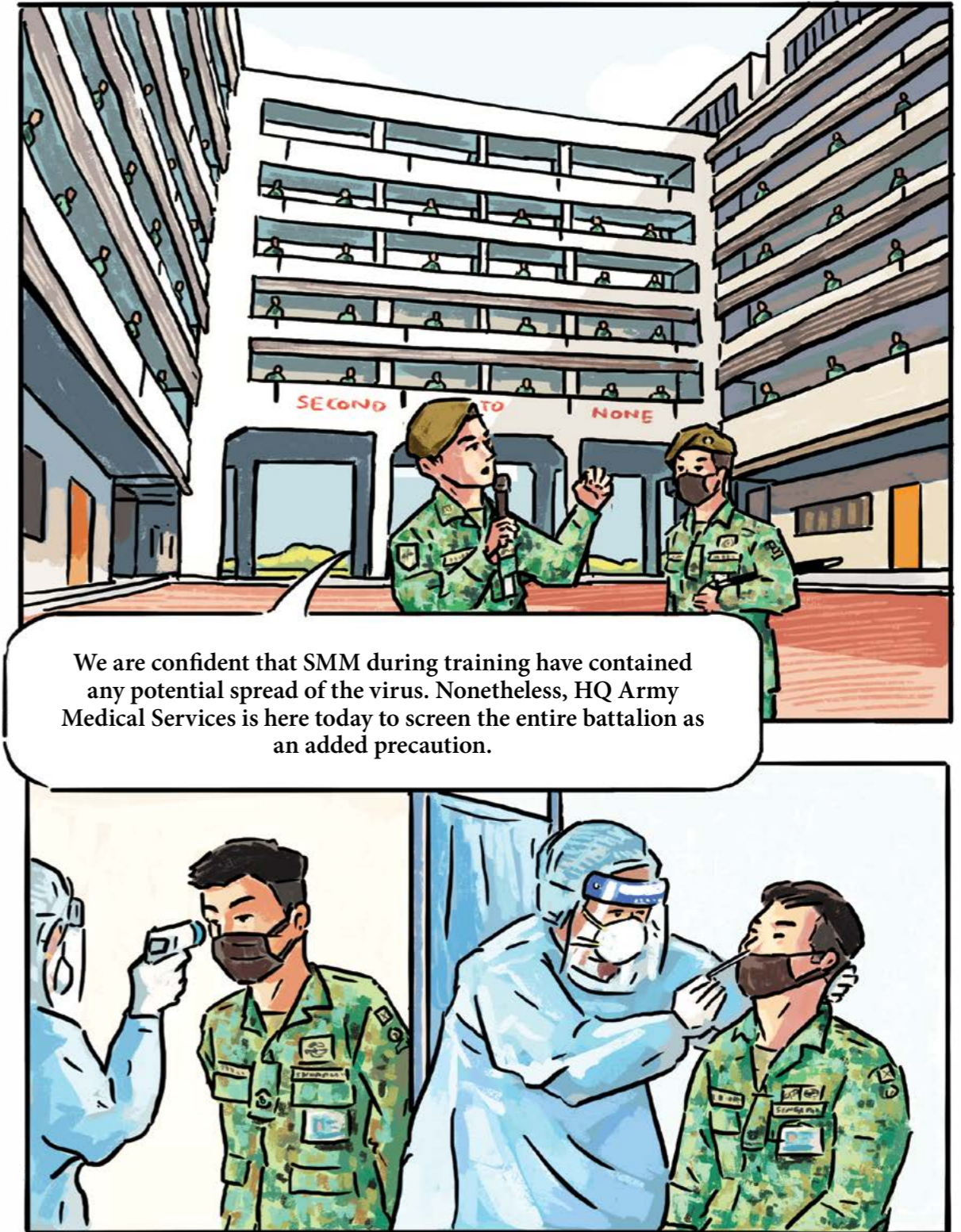
HQ Army Medical Services (HQ AMS) also responded to LTC Enriquez's request for medical support. To give greater assurance, SAF Medical Officers (MOs) were deployed to swab all 29 close contacts in their homes that same day and they were told to stay home until their swab results cleared them. The next day, after the rest of the battalion had booked in, HQ AMS deployed MOs to 2 SIR to do medical screening for the entire battalion. Anyone with flu-like symptoms was immediately swabbed and isolated. Those who reported sick that morning were seen by the MOs at the battalion instead of Kranji Camp Medical Centre, which was the norm, to reduce the risk of further infection.



SAF Medical Officers were deployed to swab all

29 close contacts

in their homes that same day and they were told to stay home until their swab results cleared them.



We are confident that SMM during training have contained any potential spread of the virus. Nonetheless, HQ Army Medical Services is here today to screen the entire battalion as an added precaution.

Illustration: Mr Lee Xin Li

WE TAKE OFF IN 48 HOURS

It was 15 August 2021, and the fall of Afghanistan’s capital Kabul to the Taliban sent shockwaves around the globe. When Vice President of the United States (US) Ms Kamala Harris visited Singapore a week later, Prime Minister Mr Lee Hsien Loong offered the US one of the RSAF aircraft to assist with the evacuation of those stranded in Afghanistan.

LTC “W” was a Branch Head at Air Plans Department and had been CO 112 Squadron — home of the RSAF’s newly operationalised A330 Multi-Role Tanker Transport (MRTT) — before that. He received a text from the

Campaign HQ informing him that he had been nominated National Contingent Commander for in-theatre operations. And he had only 48 hours to assemble the team and logistics for the mission. While LTC “W” knew that the mission was urgent, he had not expected the deployment to be so immediate. He had to coordinate the mission details with the Americans, run through the operational schedule and security plans, and assemble the task force immediately. Together with the current CO 112 Squadron LTC “C”, LTC “W” began to gather the people he needed to make the mission a success. As a former CO, he was confident that the subject matter experts could be counted on to formulate the plans.

Minister for Defence Dr Ng Eng Hen, with CDF LG Melvyn Ong and Chief of Air Force MG Kelvin Khong, meeting SAF personnel before their deployment to support the Afghanistan evacuation operations.
Source: MINDEF



LTC “W”, we need to form a team and launch for the mission as soon as possible. The situation in-theatre is evolving quickly and we only have a small window to provide meaningful assistance. The current plan is to ferry the evacuees from Al-Udeid Air Base in Qatar to Germany.



Illustration:
Mr Lee Xin Li

FROM TAKE-OFF TO TOUCHDOWN

LTC “W” knew that his team would face many challenges in this mission. First, there was no established liaison contact in-theatre. The situation in Kabul was in flux and in the midst of all the complexities, the team had to find a way to fit seamlessly into the US’ operations. Second, this was going to be the squadron’s first Non-Combatant Evacuation Operation since attaining Full Operational Capability. Third, the envisaged 22 hours of daily operations would definitely push the personnel and aircraft to the limit. Finally, there was the challenge of keeping the team members COVID-free while ensuring that the mission was executed effectively and efficiently.

After a quick huddle with LTC “C” and the other team leaders, LTC “W” made a mental list of the key issues: *logistics, threat assessment, base security, COVID-19 measures, route planning, and operational contingencies*. So much to do, but so little time. There was only one way to get this done – prioritise, and empower the team to decide and execute their tasks according to the mission’s intent. The team pointed out that they could not drill down to the level of detail they wanted for some of the contingencies. But the team leaders understood that the priority was to deploy quickly. As for the rest, they would just have to figure out potential show-stoppers and settle the details when they were in-theatre.

Shortly after take-off, LTC “W” made it clear to everyone what they had to accomplish over the next few days and went through the contingency plans. “Our aim is to safely evacuate the refugees, with no COVID-19 and security incidents. The situation is



dynamic and plans will change. But be comfortable with uncertainty. Keep the aim in mind and fall back on your fundamentals and operational experience.” The team was tired from the hectic preparations but they were fuelled by their sense of mission and purpose. The team members were mostly volunteers and LTC “W” knew they were raring to go.

Before LTC “W” could get some shut-eye, it was time to prepare for landing at Al-Udeid Air Base in Qatar. But the base was full, so the landing had to be delayed by three hours. Jet-lagged, LTC “W” and his team split up and went to look for their liaison officers and logistics. Everyone sprang into action: the logistics team had to refuel the aircraft as quickly as possible, the Army personnel had to kit up and prepare to screen the first load of evacuees, the pilots had to prepare

the flight route for the next leg to Germany, and the Air Refuelling Operator had to prepare the cabin to receive the first load of evacuees. LTC “W” had to figure out how to integrate the SAF’s operations with the US’. There was much to sort out, but he was confident that the mission was in good hands because of his team members’ expertise and clear sense of mission.

BALANCING BETWEEN OPERATING BY INSTRUCTIONS AND OPERATING BY INTENT

The challenge of uncertainty which both LTC Enriquez and LTC “W” faced is something many commanders in the SAF can relate to. They know too well the perpetual tension between issuing

precise instructions and the alternative of empowering lower echelons of command to make decisions appropriate to the situation at hand. The latter approach is known as Mission Command. Commanding by instruction, in which clear and to-the-letter instructions are given, leaves little room for subordinate initiative and may be criticised as micro-managing. While commanding by intent may seem a more enlightened approach, the commander has to loosen his control, which entails a degree of risk-taking and deep trust among the team members. The question is whether one approach is superior to the other or there should be a balance between the two approaches. There is also the question of whether the context should matter greatly when deciding on the approach to take.

The RSAF’s A330 MRTT – a fuel tanker that can also be configured for aeromedical evacuation.
Source: MINDEF

IS MISSION COMMAND THE ANSWER?

Warfare is a dynamic and unpredictable affair. As the saying goes, no plan survives first contact with the enemy. Some modern approaches to warfare have thus emphasised commanding by intent rather than commanding by instruction, so that forces are agile enough to adapt to changing conditions. But organising for Mission Command may not come naturally in the military. Militaries are by their very nature detail-oriented and precise organisations, optimised for an anticipated task. So, even as militaries may see the usefulness of a more decentralised approach to command, there are cultural and structural impediments that may hamper this shift.

Any effort to shift towards Mission Command can also be complicated by technological advances in communications which enable better Command and Control (C2) of forces, thus allowing commanders at the highest echelons to observe and direct missions at the tactical level. This may lead to the conclusion that there is less need to apply Mission Command, and encourage an organisation's tendency to centralise decisions, information, and resources in the name of maximising efficiencies and minimising risks. As the SAF pursues new technologies and builds the next generation of networks and sensors, it is useful to reflect on the balance between centralisation and decentralisation. Do more powerful information resources mean that the centre is the best place for decision-making? Or could decentralised access to the same information enable not only more agile but also better decisions on the ground?

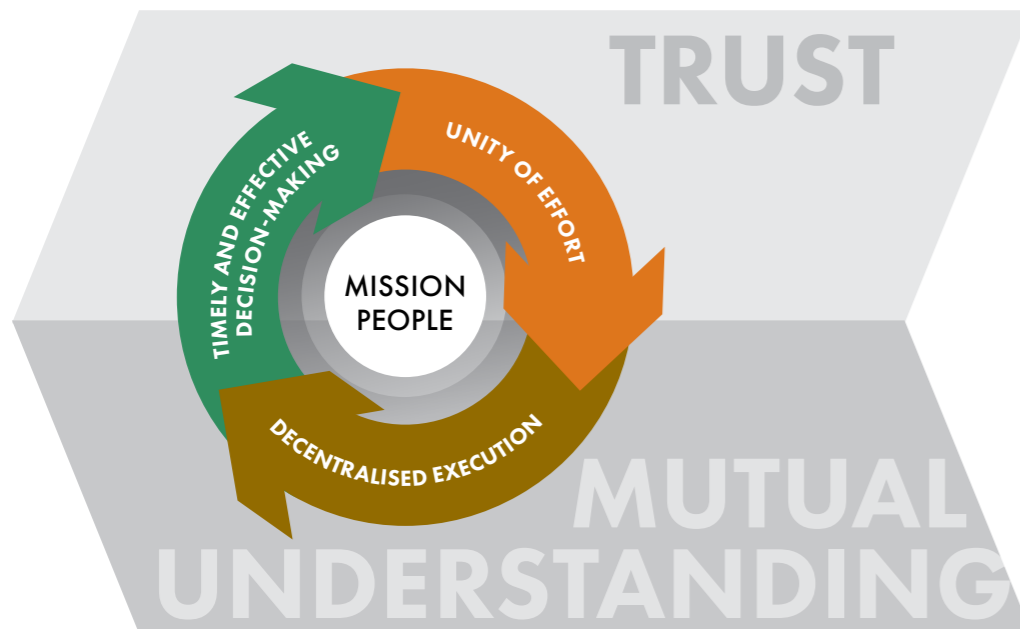
EIGHT PRINCIPLES OF MISSION COMMAND

- 1 **COMPETENCE**
Be proficient in your tradecraft, which is essential for mission command to work effectively.
- 2 **MUTUAL TRUST**
Trust your employees, and they will be more willing to use their initiative and own the task.
- 3 **SHARED UNDERSTANDING**
Create a common understanding of procedures and how to operate and solve problems.
- 4 **COMMANDER'S INTENT**
Ensure the intent is clear, with precise expression of the purpose and desired state of the mission.
- 5 **MISSION ORDERS**
Issue directives to emphasize to employees the results that are to be achieved, not how to achieve them.
- 6 **DISCIPLINED INITIATIVE**
Exercise initiative within the commander's intent to achieve the mission.
- 7 **RISK ACCEPTANCE**
Balance the level of risk to the business against what must be done to achieve the mission.
- 8 **EFFECTIVE COMMUNICATION**
Enable an understanding of intent and situational awareness.

Source: *Mission Command: Applying a military leadership philosophy to high-performance teams* (Peter David, Kearny, 2021).

As a command approach that focuses on subordinate empowerment to make decentralised decisions, Mission Command is premised on the view that there can be no perfect plan. Especially in situations fraught with uncertainty, what is critical to success is agility and responsiveness. With centralised authority, there may be delay and the risk of misinterpreting the ground situation. The Mission Command approach emphasises trust in subordinate echelons' assessment and initiative. What is key is a clear articulation of the commander's intent to ensure alignment across the unit.

These eight principles of Mission Command which Peter David of business consultancy Kearny drew up to guide business teams originated from the military. What stands out is that effective Mission Command in any organisation requires more than just C2 doctrines and systems. It is difficult to imagine an organisation applying Mission Command effectively unless there is a significant cultural and mindset shift that has permeated through the organisation.



The essence of Mission Command.
Source: Sparks Consulting LLC

GENESIS OF MISSION COMMAND

The Mission Command concept originated from the Prussian Army in the 19th Century when the concept of *Auftragstaktik* (mission tactics) emerged in response to the expanded volume, speed and reach of combat operations, and the introduction of more lethal and longer range weapons. Prussian commanders found that they could no longer maintain direct situation awareness or exert direct command over their forces.

So the Prussian General Staff identified the need to encourage flexibility and independent action at lower levels of command so that they could still operate effectively on the battlefield. Their solution was to introduce “mission-type orders” which focused on outcomes rather than tasks – the *what* to be done rather than the *how* to do it. This would allow subordinate commanders maximum flexibility to achieve their commander’s intent even when they did not receive instructions.

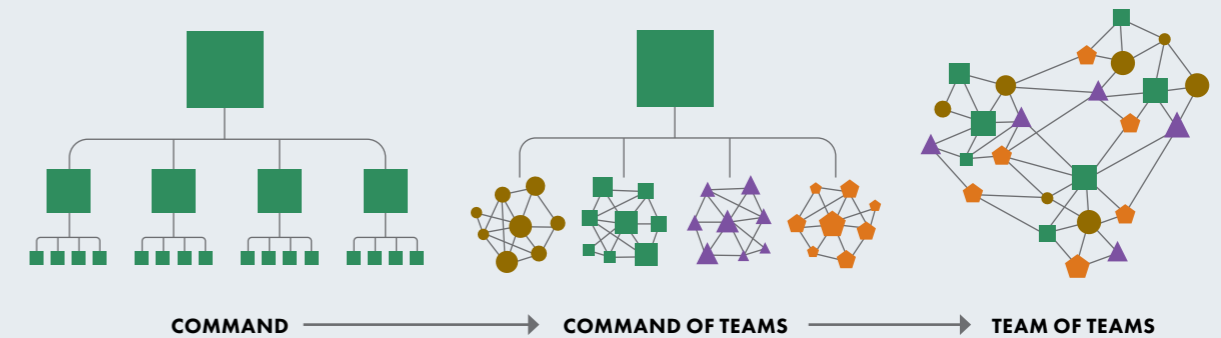
AQI’s very structure — networked and non-hierarchical — embodied this new world.

In some ways, we had more in common with the plight of a Fortune 500 company trying to fight off a swarm of start-ups than we did with the Allied command battling Nazi Germany in World War II.

CONTEMPORARY APPLICATION OF MISSION COMMAND

One of the more popular case studies of Mission Command in recent military history is that described by General Stanley McChrystal in his book, *Team of Teams: New Rules of Engagement for a Complex World*. McChrystal tells a story of how the well-equipped and well-trained Joint Special Operations Task Force in Iraq struggled to defeat the Al-Qaeda in Iraq (AQI) insurgency network. In McChrystal’s view, the key problem was that the operating environment had shifted decisively from one that his 20th Century military outfit was designed for, to one that was defined by 21st Century internet, social, and organisational networking.

FROM COMMAND TO TEAM OF TEAMS



Source: Readinggraphics.com

McChrystal’s approach to reorganising the Task Force took lessons from Mission Command. His key intervention lay not in the manoeuvre on the battlefield, but in a restructuring that leveraged on his staff’s and commanders’ “competence and adaptability”. He focused on building the necessary structures and culture that would allow the Task Force to respond quickly and adaptively in a complex and uncertain operating environment. Among other things, he instituted daily Operations and Intelligence briefs, which provided a structure around which the Task Force’s various entities could share information and improve collective situational awareness. He created liaisons between sub-units to encourage closer cooperation and sharing. These structures engendered greater trust and built shared understanding.

These formed the foundations for what McChrystal called the “Team of Teams”. They provided a bottom-up view of how team members would experience Mission Command culture. McChrystal added that in order to enable this culture to work, the mindset should be to empower teams closest to the problems, as they were in the best position to decide and act decisively.

The key words that McChrystal used are familiar. It is clear that Mission Command is indeed alive and relevant in the 21st Century. Leaders of modern Mission Command can see themselves as shepherds, whose job is to create the best environment possible for their flock to grow and flourish.

A LESSON FROM RADIO SILENCE

Writing in 2017, a young British infantry officer reflected on his experience during field training when he drew valuable lessons on Mission Command. During the Russian invasion leading to the annexation of Crimea in 2014, a Ukrainian mechanised column of over 100 vehicles had been destroyed by rocket fire within three minutes. It was suspected that the Russians had signals intelligence to target the column. Because of such a potential threat, his unit had observed radio silence in their field training.



Radio communications can be intercepted and exploited by adversaries.

The officer lamented that while his unit performed well in the first iteration of the scenario, the forces tasked with conducting an anti-armour ambush had engaged a lone vehicle prematurely, leaving the larger armoured column that came later untouched. He realised that “radios had made me lazy in my briefing because I knew I could control it well during the action.” His operations orders had lacked key pieces of information which his unit, with radio silence, needed to make informed decisions.

Adapting from the first exercise, he set about improving his orders. This time, he made his intent clear and specified contingency plans to guide subordinate actions when they did not get orders. He observed that his junior commanders took more initiative and made sound decisions even though they did not have central direction during the mission. He concluded that his subordinates were in fact “incredibly intelligent, capable soldiers who, when empowered (and) given a clear intent and detailed set of constraints, can be released on task and will carry it out to a high standard without further direction.”

The experience of this officer in an imposed radio silence clearly benefited him, and he leaves us with an interesting question the next time we as leaders reach out to our teammates: “Am I asking questions because I need to or because I can?”

Reflection — Does the SAF’s conduct of peacetime operations, peacetime administration, and wargaming/exercises support Mission Command and radio silence?

LESSONS LEARNT

Working with Uncertainty

“The greatest challenge in the entire episode was dealing with uncertainty,” reflected LTC Enriquez, “especially given that this was the first COVID-19 case in a combat unit in the SAF. I told the battalion that the only thing more scary than the virus was fear itself.” In a similar vein, LTC “W” said that “being comfortable with uncertainty and being able to nimbly adapt as conditions changed” helped the team navigate through the multitude of unknowns during their in-theatre operations.

LTC Enriquez knew that it was important, when managing a crisis, not to lose sight of the fundamentals. COVID-19 or not, the battalion still had important training objectives to meet. “The support from CTC, HQ AMS, and AIC was critical in giving us and our troopers the confidence to resume training, being assured that our battalion was ‘clean.’” LTC Enriquez also greatly appreciated that his superiors, BG Choo and COL Wong, had given his team the space to manage the situation while ensuring that the battalion had the resources for consequence management.

Mission Command: The Art of Empowerment

Faced with situations in a state of flux, both LTC Enriquez and LTC “W” had quickly given their ground commanders and team leads the flexibility to make decisions on the ground. There was no time to wait for instructions. At the same time, both commanders made sure that they issued clear mission orders. For LTC Enriquez, it

was to contain the spread beyond the index case, keep the soldiers calm, and resume regular training as soon as possible. In LTC “W”’s case, it was to safely evacuate the refugees with no COVID-19 or security incidents.

With the resources offered by the Army, each OC at 2 SIR operated independently to oversee contact tracing, disseminate information from the battalion HQ, and ensure safe management of training. There was simply no time for the CO to micro-manage. “I gave the OCs space to manage their companies, but set clear limits and deliverables like hourly reports to update battalion HQ. Each company appointed a liaison officer to communicate with HQ, so that the OCs would have the bandwidth to manage their companies.”

Similarly, at Al-Udeid and Ramstein Air Base in Germany, LTC “W”’s teams had to profile the refugees, deal with ad-hoc base closures, draw up safety and security management plans for the crew and refugees, and coordinate with international officers on various logistics and operational demands. With the situation changing rapidly, he had to leave it to the team leads and give them the necessary information and space to adjust the plans as the situation required. Like LTC Enriquez, LTC “W” set clear boundaries and deliverables, including calling for ad-hoc debriefs at the end of each mission so that improvements could be made in the next run.

Trust as a Key Ingredient

The mutual trust between commanders and their men was clear and everything went smoothly. For LTC Enriquez, it was business as usual except for Support Company, as the rest of the battalion resumed normal training with necessary SMM in place. As for LTC “W”, he trusted that his crew had COVID-proofed the plane and transit areas as much as possible, and had drawn up the necessary plans for processing the refugees.

As LTC Enriquez said, “The key ingredient for our success was the trust among our team. We trusted that our commanders could operate independently and update battalion HQ when necessary, and we trusted that every soldier was complying with the established SMM. The trust of our soldiers that the battalion was doing everything possible to protect them against infection, even as we continued training, was especially important. The men were very concerned, but the moment they were informed that there were doctors deployed for swab operations and medical screening, they were much more assured.”

These investments in consequence management paid dividends for 2 SIR. LTC Enriquez was heartened and proud to see that all close contacts of PTE “A” returned the following week for Section Field Camp. As for LTC “W”’s mission, all assigned refugees were safely evacuated to Germany, there was no COVID incident, and the mission crew returned to Singapore safely.

Both LTC Enriquez and LTC “W” had successfully led their teams through uncertain and fast-moving situations. Being closest to the ground, they best understood

the conditions and how best to respond as the conditions evolved. Just as they gave their teams the leeway to make decisions as the situation demanded, their higher HQ elements gave them the space to operate without micro-managing them while making sure that they were provided with the resources they needed. This approach echoed the principles of Mission Command, and enabled effective responses in both situations.

Applying Mission Command in the SAF

There will be greater complexity and uncertainty in our operating environment. That is a given. With that in mind, how can the SAF best apply the concepts of Mission Command? The following three points are worth thinking about.

First, Mission Command generally applies to direct leadership, but the SAF should also consider how it can be applied at the organisational level. Are there areas or situations where we can articulate broad policy intent and delegate decision-making to lower echelons of command? Could this cut red tape and save manpower and time?

Second, in applying Mission Command to our everyday work, commanders could consider setting up task-oriented focus groups comprising personnel of relevant appointments and expertise. These could be along the lines of the daily Operations and Intelligence meetings convened by General McChrystal. Structure can drive behaviour, and pulling together the right people can be a useful first step to developing more independence and autonomy at lower levels of command.



Third, commanders must be judicious about where and when to apply the concept of Mission Command. Centralised command and emphasis on rote drills have a place in the military when dealing with situations which are high-risk and highly volatile and which demand immediate action. But it is also in high-risk and highly volatile situations where immediate action is required that Mission Command may be useful, because centralisation could inhibit agile adaptation. It is important to recognise that not every situation demands decentralised command.

The challenges faced by the SAF during the COVID-19 pandemic highlighted how a decentralised Mission Command approach can be helpful to commanders when they have to respond effectively in a fast-changing and uncertain operating environment. It is not only in the battlefield that the SAF will have to operate in such an environment but even in our day-to-day operations, as our experience during the pandemic reminded us. As commanders, we have to appropriately infuse these concepts into our approaches to command.

LTC Enriquez frequently engaged his battalion, believing that open communication would help to build trust and empower his soldiers.

Source: MINDEF

MANY STEPS IN ONE BIG STRIDE

At any organisation, at any time, there will always be better ways of doing (things) ... (and) it is driven by internal motivation to solve these problems efficiently, if not more effectively.

Dr Ng Eng Hen
Minister for Defence
(MINDEF Innovation Symposium 2021)

The Singapore Army's Training Department (G6-Army) had been bracing for this — and the decision came in March 2020. The SAF was deferring all ICT for NSmen that was non-essential for operations. It was closing Fitness Conditioning Centres (FCCs) and suspending Individual Physical Proficiency Test (IPPT), IPPT Preparatory Training (IPT) and Remedial Training (RT) at all FCCs, SAFRA gyms and IPT-in-the-Park locations. The IPPT requirements for NSmen would be waived for the year. LTC Clifton Tang was head of the Training Development Branch in G6-Army and responsible for developing concepts and plans. He sat down with his staff, pondering the impact of the suspension on the physical fitness of the NSmen. They all knew that physical fitness was critical for our soldiers, as they would be physically stronger, more resilient and less likely to be injured when they are fit. The operational readiness of our units depends on fighting-fit soldiers. COVID-19 had presented the SAF with a big problem and an urgent solution was needed.



Minister for Defence Dr Ng Eng Hen speaking at the MINDEF Innovation Symposium 2021.
Source: MINDEF

ENHANCING OUR NS FITNESS SYSTEM

This was actually an issue that the SAF had already been looking at for some years. G6-Army had in 2016 started looking seriously at how to enhance the system of keeping our NSmen fit. It was easy for our NSFs to get fit and maintain a healthy lifestyle during active NS, when there were training programmes and mentoring by unit commanders on nutrition and other aspects of health and fitness. The bigger challenge was to keep them fit when they became Operationally Ready NSmen in reserve. While there were programmes such as IPPT, IPT and RT to help them maintain their fitness, their many family and career commitments sometimes made it difficult or inconvenient for our NSmen to go to SAF camps for these fitness programmes. Moreover, a programme sometimes may not meet an NSman's specific training needs.

Conditions had also changed. High-quality fitness training was available commercially. And, younger NSmen had become more negative about what they regarded as being forced to get fit or be punished. G6-Army realised that the SAF had to think about shifting the focus from assessments and RT to building the general fitness of the NS community. It concluded that it was necessary to make significant changes to how the SAF conducted physical training for NSmen.

The new approach would require a big shift in mindset. The Army would have to inculcate a habit of keeping fit early in the NS cycle, and encourage NSmen to maintain this habit in the years ahead. It would also have to make the fitness training for NSmen more convenient and accessible. The vision was ambitious – and compelling. But questions remained, the most important of which were how to ensure a high standard of training and instruction, and how to provide the same standard of safety and care for our NSmen during the training.

The G6-Army team knew that it would take time to achieve all that they aimed to do. The team set about developing a roadmap that called for NS physical training to be conducted in accessible locations outside of FCCs and eventually for physical training to move online so that NSmen could do fitness training wherever it was most convenient for them. The roadmap included trials and pilots to test run the fitness programme, to make sure that it would be effective in encouraging NSmen to adopt an active and fit lifestyle. It was also necessary to make sure that the back-end system would work.

THE MANY FAMILY AND CAREER COMMITMENTS OF OUR NSMEN.

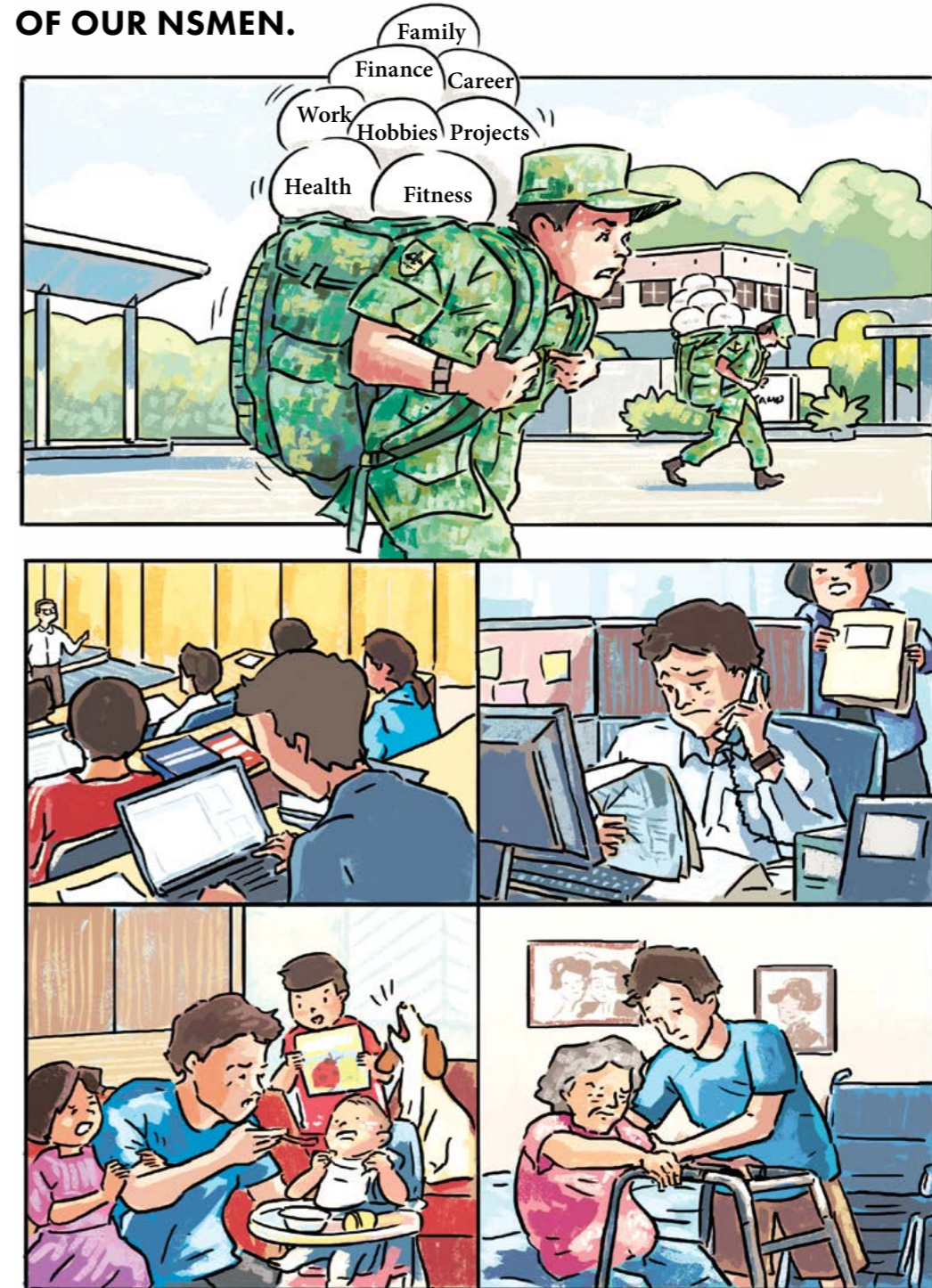


Illustration:
Mr Lee Xin Li

IMPROVING NS EXPERIENCE

NS FIT Introduced for Greater Convenience and Flexibility

The Singapore Armed Forces, in collaboration with the Health Promotion Board (HPB) and SportSG, will roll out NS FIT from April 2021 to motivate Operationally Ready National Servicemen (NSmen) to incorporate fitness and exercise into their lifestyles, meet annual fitness requirements and remain operationally ready.

GREATER CONVENIENCE & FLEXIBILITY
NS Fitness Improvement Training (FIT) offers more convenience and flexibility for NSmen to stay active through a holistic fitness programme.

TOTAL 42 sites
with 3 upcoming

Existing Locations
4 FIT@Fitness Conditioning Centre
3 FIT@Park
6 FIT@SAFRA Gym

Additional Locations
29 FIT@HPB Quick HIIT
3 FIT@ActiveSG Gym (Upcoming)

HOLISTIC FITNESS PROGRAMME
The NS FIT programme offers fitness activities beyond IPPT-specific training to encourage NSmen to make fitness and exercise a lifestyle.

FITNESS AS LIFESTYLE WITH FAMILY & FRIENDS
When participating at HPB Quick HIIT locations, family and friends of NSmen can sign up for the same session via HPB's Healthy 365 mobile app.

STREAMLINING NS FITNESS REQUIREMENTS
The NS IPPT System will be revised:

Current NS IPPT System	NS FIT
Pass IPPT or attend: IPPT Preparatory Training (IPT)	Pass IPPT or complete 10-session NS FIT inclusive of 1 IPPT attempt
Remedial Training (RT)	

The 10-session NS Fitness Improvement Training programme – a holistic plan to stay fit and active at 42 locations island-wide.

Source: MINDEF

The team had to start small, so that concepts could be proven along the way and all the concerns could be allayed. It could not be an immediate jump to fully virtual physical training. The programme was not yet ready when the “Circuit Breaker” was imposed in 2020. But the COVID-19 situation injected great urgency in the project, and by April 2021 the SAF was ready to roll out the first phase of the NS Fitness Improvement Training (NS FIT) programme. This would replace IPT and RT in SAF camps. The NS FIT programme had been developed in collaboration with the HPB and Sport Singapore (SportSG), and it provided more options such as high-intensity interval training. It was also more convenient for the NSmen as there were 42 locations where they could train. This small step — but a major trial in the rollout of the NS FIT programme, being the first step in the push towards non-IPPT based training — allowed the SAF to gauge the effectiveness of moving fitness training outside of the camps and prove that this could be effective in maintaining and improving fitness and health. It was a milestone in the roadmap for a radically new approach to physical training for NSmen.

The next trial was to test the feasibility and effectiveness of virtual physical training. This involved two NS brigades, 9 SIB and 21 SIB. For this group, the G6-Army team focused on the physical training and not the administrative elements of the programme. The results were encouraging – the participants gave positive feedback, particularly on the convenience and quality of the programme. The pilot ran for the rest of the year, and the team was optimistic that with the results from a full year of

trials and the lessons learnt, the objective of moving NS physical training out of camps to locations more convenient for NSmen and eventually online could be fully realised.

On 15 May 2021, with the COVID-19 Delta variant raging, the Government enforced more stringent measures and Singapore entered Phase 2 Heightened Alert (P2HA). In tandem, the SAF announced the suspension of IPPT and other fitness training until 13 June 2021. This suspension was similar to the one imposed in the previous year’s “Circuit Breaker”, but this time the G6-Army team was more prepared.

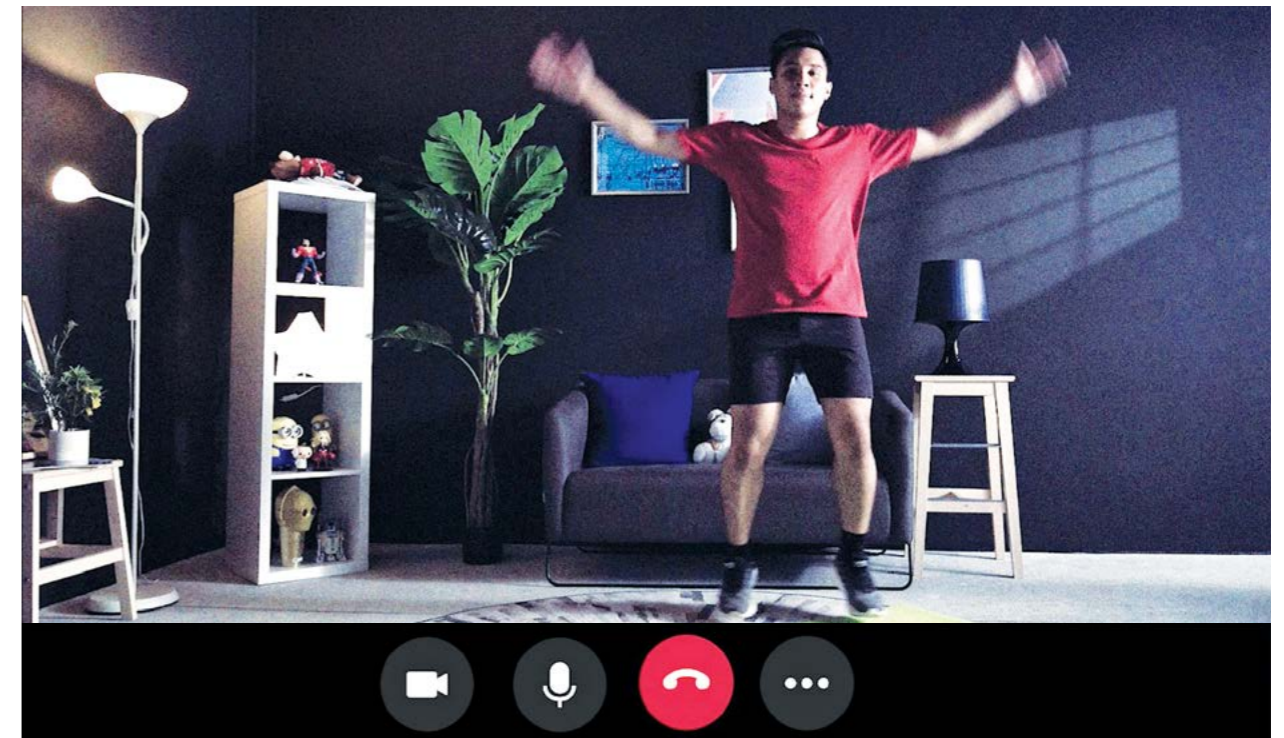
With the success of the pilot programme, the team felt ready to quickly implement the virtual training system throughout the SAF.

Led by the Centre of Excellence for Soldier Performance, the team got to work with its partners – Personnel Command to capitalise on the NS Portal, Certis CISCO for fitness trainers to conduct the programme, and DSTA to ensure a successful roll-out.

The FIT@Home programme for NSmen was launched in July 2021. The response was overwhelming right from the start. Each session had a maximum of 45 participants, and slots were fully booked every month. The feedback was positive on the convenience and flexibility of the programme, and the effectiveness and engagement of the training. Some commented that the fitness programmes were as good as the virtual gym classes offered by commercial gyms.

An NSman doing a workout guided through a virtual platform.

Source: MINDEF





The FIT@Home Trainer observes and guides participants to make sure that they perform to standards.

Source: MINDEF

With the encouraging feedback, the G6-Army team worked to offer more types of fitness programmes and increase the number of time slots to meet the interests and demands of our NSmen. The team steadily built up the programme, introducing innovations along the way so that the fitness programmes would continue to cater to the changing lifestyles and needs of our NSmen. The use of the virtual platform for fitness activities has since been adopted widely across the SAF beyond FIT@Home, including virtual physical training for recruits. Making major adjustments to physical training for our NSmen, especially moving it online, was an ambitious goal for G6-Army. There were many components and it was necessary to conduct small pilots to test them, learn lessons, and make improvements. And after the second suspension of NS fitness training, G6-Army moved quickly to roll out the FIT@Home programme. This was a demonstration of “Think Big, Start Small, Move Fast” at work.

THINK BIG, START SMALL, MOVE FAST

The concept of Think Big, Start Small, Move Fast is from the book *Think Big, Start Small, Move Fast: A Blueprint for Transformation from the Mayo Clinic Centre for Innovation*. This approach to solving problems begins with setting an ambitious long-term goal to galvanise stakeholders, starting small with pilot projects in order to learn with lower stakes, and moving fast to implement and scale up when the trials are successful.

Think Big

The importance of setting an ambitious vision is best characterised by the concept of Big Hairy Audacious Goals (BHAGs) from the book *Built to Last* by Jim Collins. A BHAG is by definition an ambitious goal, and it is a powerful way for a team to stimulate progress by focusing on a singular compelling vision. A BHAG need not be a goal on a strategic level. There can, and should, be multiple BHAGs across different levels of an organisation. Leaders can set BHAGs for their teams, energising them to aim for bold and maximal outcomes in their part of the organisation.

Start Small

When rolling out something radical and potentially disruptive, implementation is key for it to succeed. In another book, *Great By Choice*, Jim Collins’ concept of Fire

Bullets, Then Cannonballs advocated that leaders first conduct low-cost, low-risk, low-distraction experiments (bullets) to figure out what works, then calibrate the line of sight before firing the big hits (cannonballs).

Successful projects and products may look, in retrospect, like a single-step creative breakthrough. But many of them are not single strokes of genius; they actually go through a multi-step iterative process of trial and error based on empirical validation. Starting small has many benefits. Developing Minimum Viable Products (MVPs) – or the simplest usable version of a product – can set the ball rolling for the product to reach people’s hands and enable the team to start collecting feedback, and learn useful lessons in the process. The small test of an MVP also means that the costs and risks are lower. And starting small allows many approvals to be fast-tracked as there is less red tape. Once there are successful MVPs, the track record of the small successes would also make it easier to get approval for future expansions and roll-outs.

Move Fast

The book *Think Big, Start Small, Move Fast* pointed out the relevance of moving fast in many stages in innovation and cited many advantages of doing so. This approach allows the team to test its hypotheses quickly and rapidly expand the reach of its product once the MVP or pilot is successful. Moving

fast also helps to sustain momentum and interest in the project among stakeholders, and the team can ride on the goodwill and positive views to push through red tape. It also means that benefits can be quickly extended to a larger group of users and stakeholders.

In large organisations like the SAF, the momentum of a success story can have far-reaching effects because there are many stakeholders beyond the ops users across the SAF, such as our technology partners in DSTA and DSO and policy-makers in MINDEF. The benefits include sparking enthusiasm among the wider team and even the whole ecosystem, which could in turn encourage more innovative ideas.

While the concept of moving fast is contentious and often associated with the controversies behind Big Tech firms like Facebook, Google, and Amazon, the core concept is that mistakes and failures are natural and even necessary for innovation in a competitive and complex environment. And when projects fail, stop quickly, learn from the experience, and move on. In sum, the philosophy of Moving Fast encourages leaders to review change initiatives regularly and enable an iterative process in organisation change, so that they act decisively in scaling good initiatives and, just as decisively, kill off bad ones.

DIGITAL INNOVATIONS

The “Think Big, Start Small, Move Fast” concept is most often applied to digitalisation and technology-related projects, and this was the approach the SAF took when COVID-19 spurred us to come up with digitalisation innovations when the pandemic made it impossible to do things the usual way. Beyond fitness training, virtual meetings, even virtual open houses, became the new norm. The positive feedback on the many innovations gave impetus for us to move fast and scale up digital means to reach more stakeholders, including our servicemen posted overseas and their families. Working with DSTA and DSO, a multitude of digital solutions was developed and widely implemented.

Besides developing tech solutions to support the WoG fight against COVID-19, such as the SwiftCobra app, the SAF developed several apps for use by its own people and units. The ArmyDeclare and SwiftMED apps were developed for visitor entry to SAF camps to enable efficient contact tracing. The RSN set up a tele-consultation service for medical reviews to assist COVID-positive servicemen when they were recovering at home or in the naval base.

Source: MINDEF

Leveraging Tech & Innovation to Drive Digital Transformation

MINDEF/SAF is undertaking digital and data transformation efforts with the goal of becoming digital to the core. The initiatives include:

STRENGTHENING DIGITAL INFRASTRUCTURE

1 New Cloud system for digital solutions
MINDEF's Cloud adoption will be tiered:

- Commercial Cloud for less sensitive services, functions and data
- Internal Cloud for classified information and functions which require enhanced security

From mid-2021



2 Facilitating speedier digital innovation
The **Digital Factory** is a collaborative space set up to fast-track and support the development of digital solutions.

Since Sep 2020



MAXIMISING RESOURCES

3 Automated transport in SAF camps and bases
These **autonomous vehicles** can save manpower resources by automating transportation services of personnel and ground supplies.

Ongoing trial



STREAMLINING WORK PROCESSES

4 Digitalising RSAF's transport fleet management

MT APP
WHAT IT DOES
Streamline Administrative processes for Drivers

HOW

Drivers	Supervisors
Submit Status	Approve RDMS
Check vehicle status	View Driver Records
Track Currencies	View Records

RESULTS?
WITHOUT MT APP: 20 MIN > WITH MT APP: 5 MIN

By automating the tracking of journey details and maintenance record of transport operators, the **RSAF Military Transport Fleet Management app** reduces time required to complete admin processes by 75%.

Ongoing trial

ENHANCING CONVENIENCE

5 Mobile medical care
Medical personnel can now view their patients' medical history on the go via the **Patient Care Enhancement System (PACES)**. This electronic medical records system is especially useful in cases where medical personnel are deployed outfield or overseas.

Since Oct 2019



6 Greater ease in capturing feedback, organising data during training
LEARNXP is a digital learning solution that enables units to easily create training checklists, record observations and organise data for debrief.

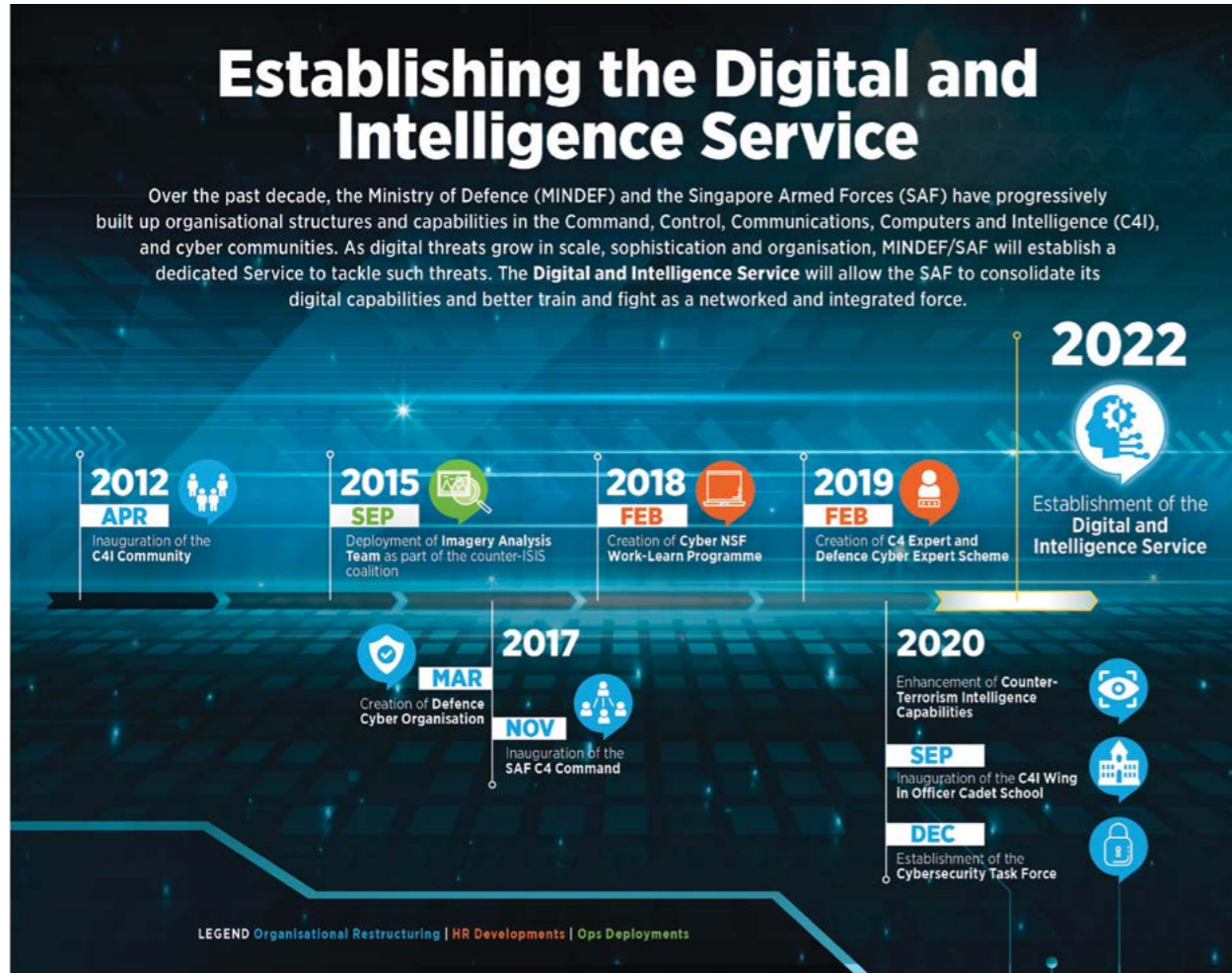
Since Apr 2020



7 RSAF Medical Centre in your hand
The **RSAF Mobile Healthcare app** provides one-stop access to healthcare management functions such as appointment bookings, telemedicine and medical personnel's access to patients' healthcare records (via PACES). The app will be implemented across the SAF when fully developed.

Trials in 2Q 2021





Source: MINDEF

When the innovations worked well, we were encouraged to scale up and to explore and adopt even more digital solutions. More apps were developed, starting small with pilot projects. Some showed potential for application across the SAF, such as the RSN’s SafeGuardian app which digitalised safety processes and hazard reporting, so that training safety and safety compliance were enhanced. Another was the RSAF

MTMobile app, which was a ground-up innovation that tracked journey details and maintenance records automatically. This app reduced administrative work for transport operators and supervisors by 75% and improved sustainability. In time, MTMobile will be scaled up for use throughout the RSAF and can potentially be useful for the Army as well.

Organisationally, the SAF has also adopted the Think Big, Start Small, Move Fast philosophy. In the digital and intelligence realm, the SAF started small with the C4I Community in 2012 and then the Defence Cyber Organisation in 2017. These steps enabled the SAF to trial many initiatives and build up critical mass and expertise – which set the foundation for the new Digital and Intelligence Service which was announced by Minister for Defence at the 2022 budget debate.

INNOVATING FOR SAF 2040

Accelerating innovation will be critical as the SAF moves towards its SAF 2040 vision. Innovation in the area of digital transformation will allow us to exploit tools such as Artificial Intelligence (AI) and Machine Learning (ML) to manage complexity and give our forces the edge. To accomplish this, the SAF’s digital solutions for operations must be supported by a strong digital core of networks, cloud infrastructure, data architecture, cybersecurity practices and tech stacks. This digital core will enable the SAF to collect and sense-make information quickly and at scale, uncover insights to make decisions, and enhance the speed and effectiveness of our operations. This is the ambitious vision (Think Big) for the digitalisation of the SAF. To achieve this vision while being fully mindful of security considerations, the SAF has taken small steps (Start Small) to build up its digital infrastructure, train its people and pilot digital capabilities in operations. This deliberate process allows us to figure out what works well for the SAF and what does not.

Many parts of the SAF will also have to embark on organisational change journeys as our environment becomes more complex and resource constraints pose greater challenges. We can also apply the concept of “Think Big, Start Small, Move Fast” to organisational change when we work on innovations in areas such as human resources, finance, logistics, and healthcare. Leaders must Think Big and define the “big problems” if organisational change is to be truly transformative.


To move innovations both in digital transformation and organisational change, our people can be encouraged to Start Small by piloting initiatives. Pilots are useful as they provide a safe environment for trial and error, and allow us to scale up quickly when they show good results. They also enable us to learn from failures. And if the change initiative does not deliver the intended results, it can be quickly stopped and the resources reinvested in other areas. Organisational change is not linear but iterative, and not all change initiatives should be scaled up. In developing the innovations we need, there will be many instances where it will serve us well to Think Big, Start Small, and Move Fast.

AGILE RESPONSES

Planning for National Day Parade (NDP) each year starts even before the previous year's NDP is over. For NDP 2020, the planning began in July 2019. The nation's 55th National Day would be celebrated at The Float @ Marina Bay. The Committee was working hard on finalising the concepts by the end of January 2020.

NDP 2020: A DAY OF CELEBRATIONS

This year's National Day Parade features many firsts to bring celebrations to every home on 9 Aug



PRIME MINISTER'S NATIONAL DAY MESSAGE

PARADE @ THE PADANG

NATIONAL ANTHEM & STATE FLAG FLYPAST
Across different heartland locations with concurrent flag-raising ceremonies across the island

ROAR OF UNITY
Six F-15SGs will fly round the island in formation

PRESIDENTIAL GUN SALUTE

MOBILE COLUMN
Will travel through the heartlands

RED LIONS
Appearances at selected heartland locations

MARITIME SAILPAST

Participate from home!

PLEDGE CARD
Take action for a worthy cause and share on social media

E-COOKBOOK & COOKING ACTIVITY

WORKOUT WITH ACTIVE SG


SHOW @ THE STAR THEATRE
An intimate and meaningful show performed at The Star Theatre, broadcast over TV & the Internet

HEARTLAND FIREWORKS
More than 10 different sites across Singapore


Traditional NDP favourites to bring Singaporeans closer in spirit & pay tribute to frontline fighters & community heroes.

★ **FIRST TIME IN NDP HISTORY**


Participate from home!




LIVE CHAT INTERACTION




VIRTUAL CHOIR



TRIBUTE TO COVID-19 FRONTLINE FIGHTERS



LIGHT UP MOMENT



NATIONAL ANTHEM & PLEDGE MOMENT

Source: MINDEF

We had set an internal target to have the Parade ready by the third Combined Rehearsal in June 2020. This meant having the concepts worked out and approved by October 2019, and the tenders issued before Chinese New Year in late January 2020. Everybody had been working very hard, especially over the year-end period, and we entered 2020 quietly confident that we had things firmly under control. As a matter of fact, the music for Acts 1 and 2 was already completed by January 2020, which the Music Director Dr Sydney Tan, who has worked on many NDPs, said was unprecedented.

BG Frederick Choo
Chairman of NDP 2020 EXCO

But then came the bolt out of the blue! The Government imposed a “Circuit Breaker” in April 2020 following a sharp rise in COVID-19 cases. The NDP plans that had been so painstakingly made had to be scrapped. It was not enough to just scale down the show at the Float; it would have to be a radically different concept. The various NDP committees had to return to the drawing board.

Eventually, the decision was made. If COVID-19 risks meant that we could not bring Singaporeans together for NDP, we had to bring NDP to Singaporeans in their homes. We had to still be able to celebrate our resilience and unity as one people. Guided by this, the NDP 2020 committee developed plans for celebrations in the heartland to pay tribute to healthcare

workers and frontline fighters. There would be mobile columns along five routes and fireworks at over 10 sites around Singapore.

Among the NDP committees, the Show Committee was most challenged by the radical change to NDP 2020. Instead of an outdoor show at the Float, it would now have to be an indoor show. But even as they quickly developed an indoor show, new issues kept popping. Among other things, the costume vendors were in a quandary because they relied on workers from Malaysia to do the tailoring, but factories were shut and non-essential services had to cease in April.

With just four months to National Day, there was one key question on everyone’s minds: Can we pull this off in such a short time?

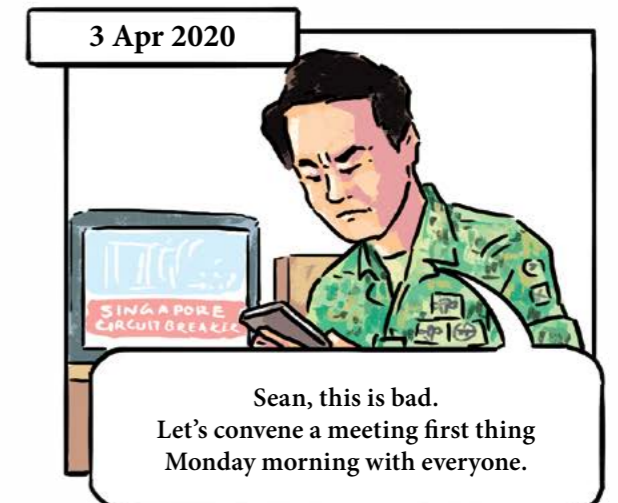
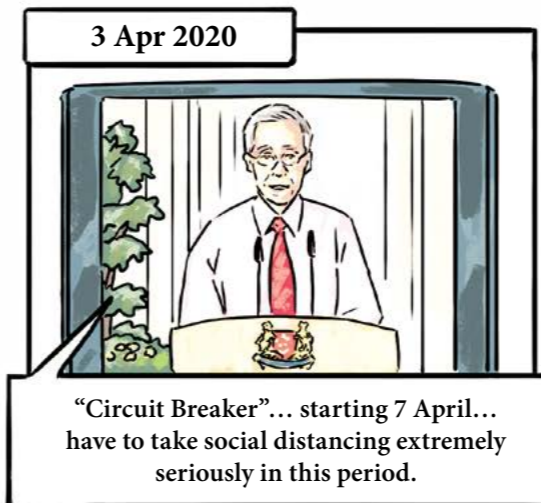
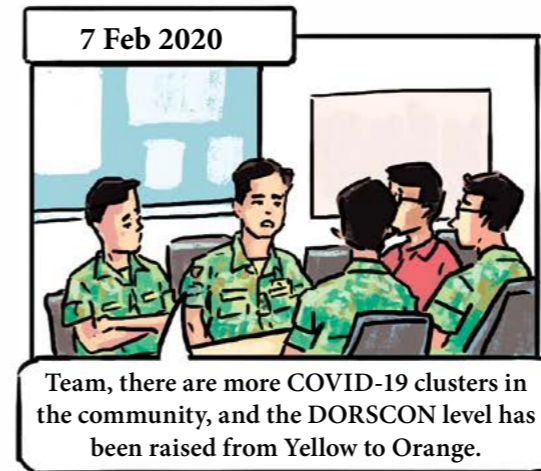


Illustration: Mr Lee Xin Li

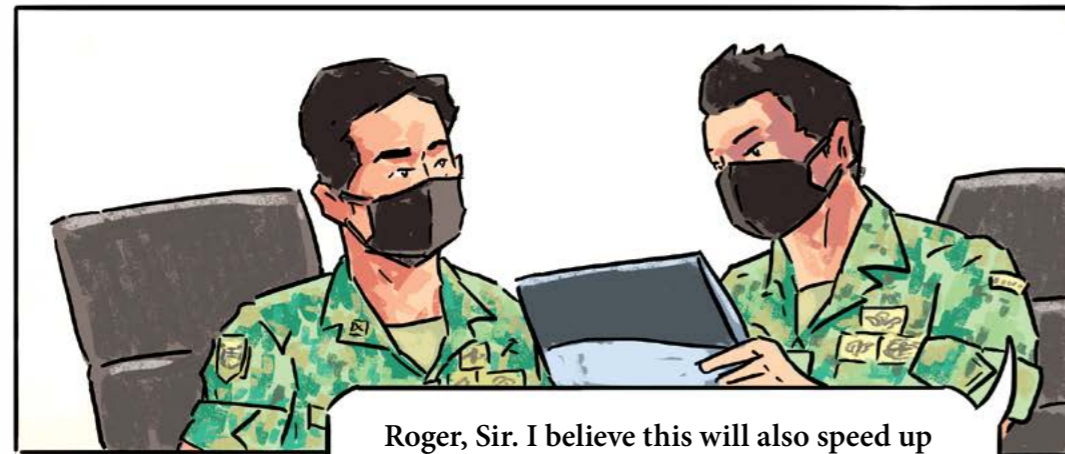
NDP 2020 RE-IMAGINED



Let's change each act to be modular...



The shorter segments will give us more flexibility if we have to make changes.



Roger, Sir. I believe this will also speed up the rehearsal process.

Illustration:
Mr Lee Xin Li

This year, the canvas of our NDP is not the Floating Platform but across the country.

COL Wong Shi Ming
Chairman of NDP 2020 Show Committee

Faced with the prospect of many potential show-stoppers, Chairman of NDP 2020 Show Committee COL Wong Shi Ming and his team made a radical decision. The show would be broken down into as many smaller segments as possible. The usual four acts of NDP shows would be divided into 12 segments, ranging from one to three minutes each. This would allow the number of performers on stage at any one time and the number of crew and other support personnel to be kept within the limits set by SMM. The modular nature also offered more flexibility and it would be easier and faster to adapt and adjust should there be other

disruptions down the road. Each segment group could also give quick feedback on its progress to the main Show Committee after every rehearsal and this helped to speed up rehearsals. The Committee had found a practical and agile response to the COVID limitations for the NDP Show by making it modular.

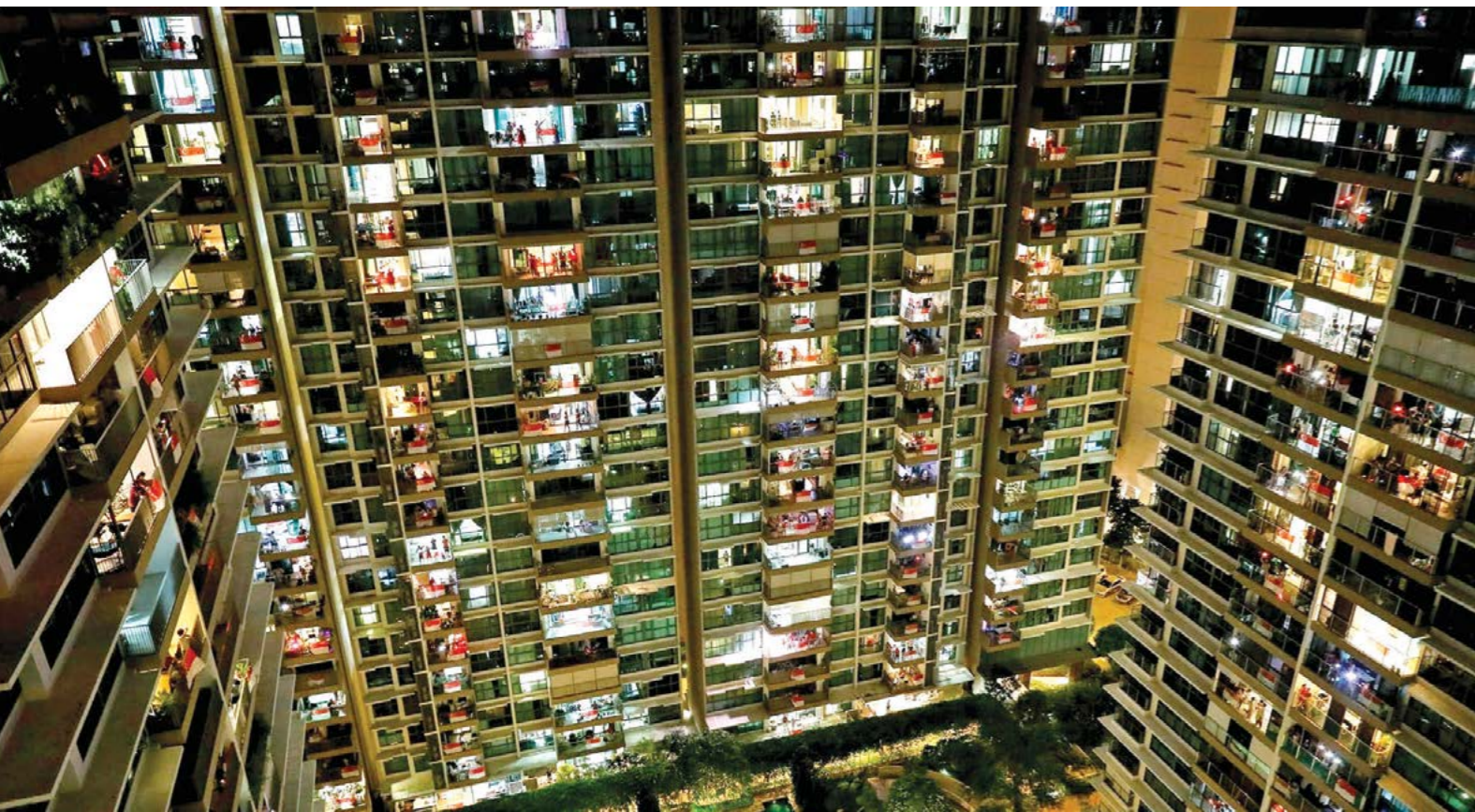
With the demands of the new NDP concept and a compressed timeline, the Committee had to adopt quicker work processes and emphasise transparent collaboration. Sharing of information with other stakeholders became significantly faster than in previous NDPs because decisions had to be made urgently. The NDP 2020 Show Committee held daily hot-syncs and functional group level meetings, and weekly committee reviews. These frequent and intensely focused interactions involving all stakeholders ensured that activities were well coordinated, bottlenecks spotted early and remedial measures taken promptly.

Shorter, modular show segments used as the main show concept for NDP 2020 at the Star Performing Arts Centre.
Source: NDP 2020 Media Team



On 9 August 2020, it was clear that while COVID-19 had stopped the public from gathering at the Float and around Marina Bay to watch the parade and show, it had not stopped them from enjoying the NDP in other ways. The pandemic had compelled the NDP organisers to press the refresh button and embrace agileness. With determination

and innovativeness, they had re-imagined how to bring NDP to Singaporeans in a way that invoked patriotism and pride. The spirit of resilience, fortitude and perseverance conveyed through an NDP celebration against heavy odds was not lost on Singaporeans.



Singaporeans united in solidarity during the nationwide Light-up Moment at 2020 hrs.
Source: NDP 2020 Media Team



My family, friends and I all felt that yesterday's National Day Parade in the morning, the Show in the evening, and the across-the-island events like the mobile column have really helped reinforce the meaning of unity as a nation over this difficult time. The special tribute to frontline workers (and many in the SAF who have undertaken COVID-19 related work) is extra special, touching and serves as a deep reservoir of motivation, knowing that we have the support of every Singaporean behind us.

Dr Gan Wee Hoe
COVID-19 Frontline Worker

Singaporeans cheering as the Mobile Column went through the Heartlands in NDP 2020.
Source: NDP 2020 Media Team

THE AGILE PHILOSOPHY

In the 1990s, software companies hit a roadblock. Traditional modes of working were not responsive enough to meet the consumer demands that were growing exponentially. There was a breakthrough after 17 software developers documented a new mode of working in 2001, which today we call Agile. The fundamental principle in Agile is to prioritise customer satisfaction by responding quickly to change instead of following a fixed plan.

The Agile philosophy advocated a mindset shift in project management by laying out the core principles of Agile work processes. Soon, emerging software companies started adopting this philosophy by remodelling their work processes. By doing so, they gained competitive advantages in seizing new market opportunities in the digital age.

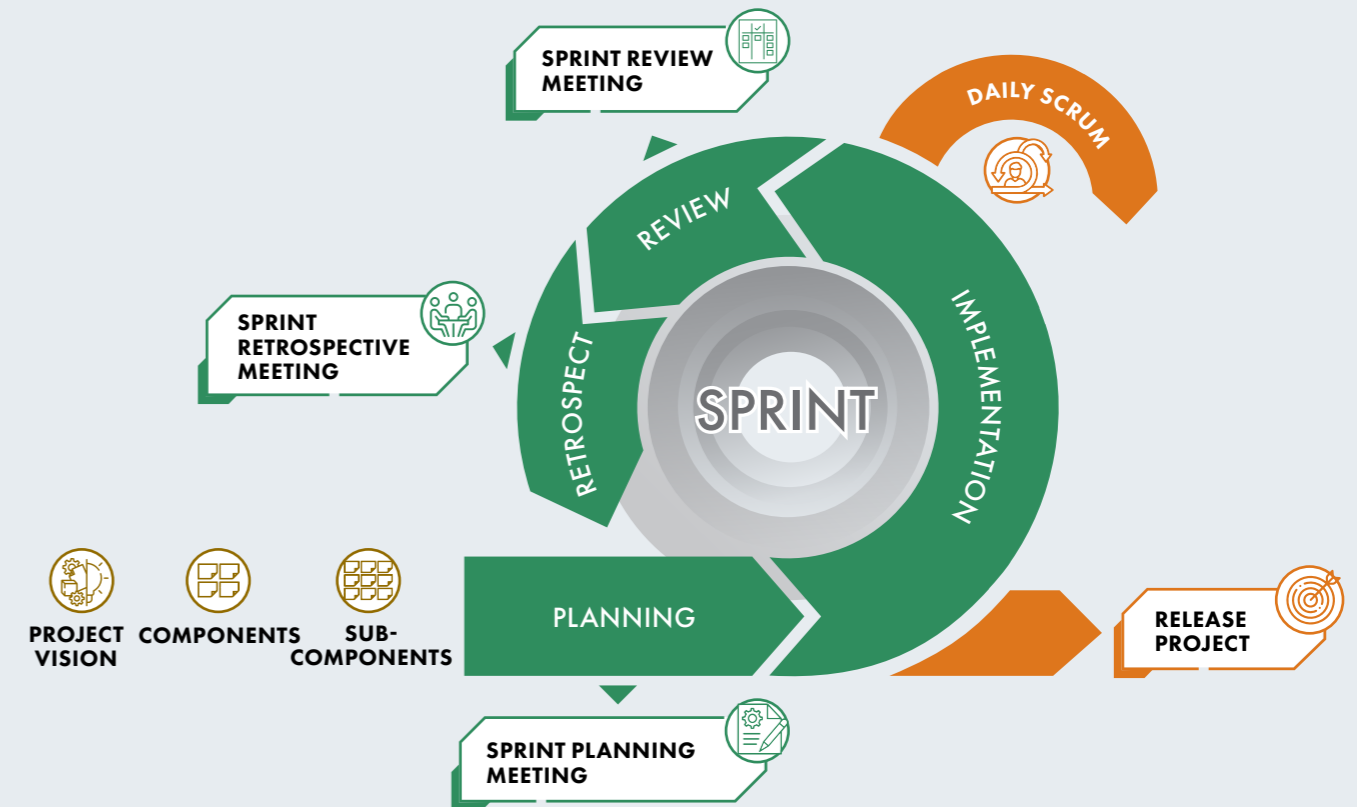
Most of the work processes that are recognised as adhering to the Agile philosophy contain similar strategies. These include working in short iterative cycles and breaking a big project into smaller modular components. These strategies also promote transparent collaboration, enabling timely information sharing through small, multi-domain, and self-organised teams.

Prominent users of Agile methods, such as Apple, Facebook and Airbnb, demonstrated the appeal of these new processes. They ignited a wave of widespread adoption of this philosophy beyond IT and software companies. There are now companies that solely develop Agile project management platforms for others, such as Atlassian's Jira platform.

The Jira platform is based on an Agile project management framework called Scrum. It starts by breaking down a project into any array of sub-components. Then, these sub-projects are prioritised and assigned to small teams with a short timeline of one to two weeks, termed Sprint. Throughout the Sprint, the framework emphasises information exchanges through events such as the daily 15-minute meetings termed Daily Scrum, Sprint Planning, and periodic reviews. These meetings promptly align team members with the progress, obstacles, and strategy adjustments.

By quickly delivering small working products in such short times, the success of Scrum lies in being able to narrow the critical distances that an initiative had to cover. It brings developers closer to customers, connects the organisation's skillsets, and bridges the space between long-term deadlines and short-term actions by implementing near-term milestones.

THE SCRUM PROJECT MANAGEMENT FRAMEWORK



Credit: Visual-paradigm.com

By narrowing these gaps, organisations can respond quickly and effectively. These are essential qualities needed to survive in the face of uncertainty. It was these qualities,

through Scrum methodologies, that navigated many of the software companies through the maze of uncertainties brought by the COVID-19 pandemic.

GRAB – AGILE IN THE PANDEMIC

When the “Circuit Breaker” was imposed in April 2020, the ride-hailing company was hit hard by the lockdown. In the midst of the crisis, Grab noticed a rising trend in on-demand delivery requests across its fleet of drivers. Equally pertinent was the fact that the lockdown had caused many food and beverage outlets to shut down as they could not get food to the customers.

Food delivery then became an enticing opportunity for Grab to prevent it from going under. However, there were huge problems to overcome first. These included developing the user interface, payment system and fee structures while building a comprehensive search engine. There was also a critical and urgent need to secure buy-in from the vendors and the public.

Grab maintained its culture of agility in the face of the uncertainties and the challenges of a massive shift in business strategy. It divided this initiative into smaller sprints with teams focusing on quickly delivering simple prototypes for different components. One such feature was the progressive roll-out of Mix & Match function at hawker centres, allowing eaters to place orders from participating hawkers in one location.

Grab then used the data gathered from these pilot studies to refine the products and integrate new features such as the digital payment systems, and these were further tested on the Grab Experimentation Platform.



Grab pivoted towards food delivery during the “Circuit Breaker”.

By having frequent reviews and incorporating feedback and learning into subsequent sprint cycles, there was a compounding effect in learning and discovery for Grab. By being agile, Grab more than survived the pandemic as it seized new market opportunities and rapidly expanded into multiple business sectors. As of 2022, its ubiquitous super-app offers various ride-hailing, deliveries and financial services options.

AGILENESS: FUNCTION OF BOTH SPEED AND STABILITY

While NDP 2020 adopted an agile way of working, managing change and making quick decisions were not new to the SAF. What the pandemic did was to reinforce to SAF leaders that we must always consider exploring agile strategies so that we can respond nimbly to new challenges and opportunities.

Organisational agility is necessary, but it must not be mistaken as merely adopting speedier processes over well-established systems and structures. Strong and stable systems are critical because they are the foundation necessary for truly agile organisations to detect change in time and then change direction quickly without

falling apart. Just as a soldier charging towards the enemy needs a strong core and muscles to provide stability as he dodges obstacles rapidly, an organisation too must have the backbone and core competencies to provide a stable springboard when it has to make rapid changes in direction.

An important component of our strong core – one of our fundamental principles – which was very helpful to the SAF’s work on NDP 2020 was our reputation as a good and reliable partner. The SAF has always nurtured the relationships with our partners in our long experience of participating in military coalitions and multi-agency national events. Our partners know that we consider their interests when making decisions. This valuable reputation of being a trustworthy partner has served us well.

Self-recordings sent by Singaporeans from all walks of life and all over the world.

Source: NDP 2020 Media Team



In the chaotic and difficult conditions leading up to NDP 2020, the value of this reputation was demonstrated especially when the NDP Show had to be significantly scaled down. We were forced to slash the number of performers from 3,000 to 87. It was no longer possible for our long-time NDP partners such as the People's Association, Singapore Soka Association and Ministry of Education to be featured in the live show. But, as the Show Committee

continued to engage them, they were assured that the SAF continued to recognise them as valuable long-time and long-term partners. These organisations were brought into segments such as the Virtual Choir to showcase their contribution to the nation's birthday celebration. Singaporeans were invited to participate by sending self-recordings; the response was so overwhelming that the deadline for submission had to be extended.

Despite the very fluid situation, the Organising Committee conducted multiple rehearsals to ensure a safe and impactful NDP 2021 at the Float @ Marina Bay.
Source: PIONEER FaceBook



The value that can be drawn from the interdependency between an organisation's fundamental principles – in this case, the value the SAF placed on nurturing relationships – and an agile approach was demonstrated even more clearly in the resounding success of the following year's NDP 2021. While the NDP 2020 Committee needed to change plans quickly after the outbreak of COVID-19, the NDP 2021 organisers worked on the basis that frequent changes were a given. With this mindset, they took the many twists and turns and ups and downs, the frequent and extensive adjustments to their plans, in their stride right up to 9 August 2021. The first big adjustment had come when National Day was only four months away, when the original concept of a large-scale performance was transformed to decentralised performances in satellite sites. Then, one month before National Day, when Singapore once again tightened its restrictions because of the Omicron variant, the NDP had to be postponed to the reserve date of 21 August 2021.

Throughout the NDP 2021 journey, the Organising Committee led by BG Tan Cheng Kwee took the lessons from the previous year and was instinctively agile. When the decision was made to decentralise the show, it quickly set up small teams to prioritise what needed to be done at each of the four satellite sites and to then nimbly execute the decisions. These empowered teams were focused and worked speedily, and they came up with ingenious solutions.

However, the Committee's agility alone would not have been enough to make the 56th NDP a success. As the situation kept changing and the SAF responded quickly



Participants from Singapore Soka Association, a long-time SAF partner in NDPs.

Source: NDP 2021 Media Team

with adjustments to the plans, everyone was affected. The thousands of performers were discouraged, and the vendors were frustrated. The frequent changes meant that more than ever the success of the project depended on the cooperation and commitment of all the stakeholders. Under these circumstances, the connections and relationships that the SAF had built over the years with its partners, through good and difficult times, became the reservoir of strength that the Committee could tap on. The SAF's culture of always considering stakeholders' interests provided a strong foundation on which to anchor the support and commitment of its partners in an unstable and ever-changing situation.

SAF PLANNING COMPETENCY AS A FOUNDATION FOR AGILENESS

Another core competency which contributed to the success of NDP 2021 was the SAF's planning framework: the SAF always plans in detail while anticipating changes. The extensive preliminary planning for NDP 2021 was conducted in the same systematic and collaborative way that the SAF conducts its military planning. From the start, the plan was to have an indoor celebration supported with films and animations in case COVID-19 prevented a physical show. The Committee also considered the SMM that would be needed for such a large-scale event.

With the virus still around, all participants and spectators had to be fully vaccinated and swabbed.

The NDP 2021 Committee knew that there had to be an innovation in the e-ticketing system as it would be challenging to check vaccination and swab results during the weekly assignment of seat numbers. That innovation came in the form of integrating the spectator vaccination and swab status data from GovTech with the ticketing system from SISTIC. Beyond the technical issues, the ticketing committee also anticipated concerns over personal data protection. It looked closely at what the interests of the various stakeholders might be and anticipated possible obstacles. Having done this thorough analysis in good

*Various options were considered for NDP 2021 to be a memorable milestone event.
Source: MINDEF*

time, the team was able to pitch the proposal in a way that convinced these stakeholders to collaborate in the initiative. This was an example of how SAF core competencies in detailed planning, anticipating change and collaboratively working with stakeholders enabled the NDP 2021 Committee to tap on the partnership between private and public entities to come up with an agile and innovative response.

THE NS SYSTEM: BEYOND THE ORDER OF BATTLE (ORBAT)

When the satellite site concept was developed for NDP 2021, one of the venues the NDP Show's Creative Advisors thought of was Jewel @ Changi. The Rain Vortex would be a stunning backdrop for a performance by the Singapore Symphony Orchestra (SSO). But there were challenges. The Changi Airport COVID-19 cluster had closed only recently but there was great urgency to start filming in two weeks' time. There were other issues, such as the nearby shops losing business from having to close during filming, and the unique water flow and lighting arrangements requested by the Creative Advisors.

With limited time, the SAF overcame the challenges by tapping on our NSmen. When the Creative Advisors suggested Jewel as a suitable location for the SSO performance, the NDP 2021 Multimedia Committee immediately reached out to MAJ (NS) Jayson Goh, Senior Vice President for Airport Operations Management in Changi Airport Group. As an NSman who serves in the RSAF 160 Squadron, he was sympathetic to the Multimedia Committee's predicament, and also saw an opportunity for Jewel to

be part of a unique NDP. He readily rallied the team at Changi Airport Group to help make the Creative Advisors' vision a reality. With their help, the Committee managed to organise and film the performance without any hitch. This example demonstrated how National Service is not only for staffing our military ORBAT but also a network that we can leverage to harness Whole-of-Nation (WoN) efforts in support of our mission. This ability to tap on a wide range of levers is a key pillar of agileness that enables the SAF to respond with dexterity when it needs to.

LOOKING AHEAD

Leaders in the SAF will have to grapple with more volatility, uncertainty and ambiguity in the more complex future, even in peacetime training and operations that go beyond organising NDPs. We have to undergird ourselves with a willingness and readiness to embrace agileness in all its forms. Such a mindset includes finding new and innovative ways of working that enhance speed, adaptability, learning and collaboration, even as we constantly identify and hone core strengths that support effective and agile responses. Only through agileness, characterised by both speed and stability, can we thrive in a VUCA-D world.



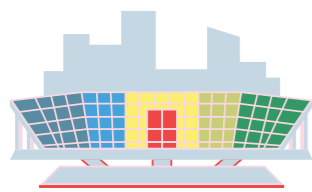
The Singapore Symphony Orchestra performing at Jewel @ Changi, a satellite location of NDP 2021.

Source: NDP 2021 Media Team

Celebrating NDP 2021 safely in various ways

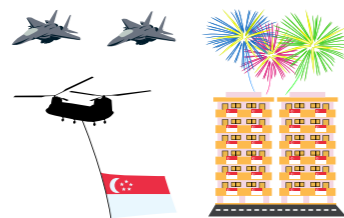
Singaporeans can continue to celebrate National Day with their families and community in a safe and meaningful way. This year's National Day Parade (NDP) has been designed with the home viewer in mind, and with various celebratory activities held across Singapore.

Live stream from The Float @ Marina Bay



NDP 2021 will return to the Float @ Marina Bay. Streamed live, it will combine performances in the **first live virtual integration for NDP**. Apart from the Show, **traditional elements** such as the Colours Party and other familiar contingents such as those from the SAF and the Home Team will continue to feature. Civilian entities and other uniformed groups will participate virtually.

Celebrations at heartland sites



On 7 and 8 Aug, the weekend before NDP, Singaporeans can look forward to catching a glimpse of **Red Lion jumps at various heartland sites**. On 9 Aug, the **State Flag will be flown across the heartlands** with fighter aircraft from the Republic of Singapore Air Force flying in formation. After the Show segment has ended, **fireworks will be displayed at heartland sites** across the island.

**Singaporeans are reminded to observe prevailing safe-distancing measures at all times.*

An NDP to be enjoyed from our homes



Both the NDP Parade and Show segments have been designed with the home audience in mind. Singaporeans can look forward to **TV-exclusive special effects**, and an innovative **blend of live performances and animated short films** created by home-grown animation artists.



SAF CENTRE
FOR LEADERSHIP
DEVELOPMENT

EDITOR'S AFTERNOTE

The COVID-19 pandemic was a time of Volatility, Uncertainty, Complexity, Ambiguity and Disruption (VUCA-D). As the SAF tackled the vast challenges that the pandemic brought to Singapore and the SAF itself, we were constantly getting the sobering reminder that VUCA-D will be increasingly commonplace in our operating environment. The pandemic only reinforced what we already knew – that this is what the future holds for the SAF. We have been planning and developing for SAF 2040 with this in mind.

What the SAF needs to be an effective armed forces in this future of destabilising complexities – what we must always have above all – is good leadership. SAF commanders at all levels and warfighting domains must continue to strengthen our leadership fundamentals. These include our mission focus, alignment of purpose, core values in action, ethical reasoning, teamwork and people engagement. Beyond that, we must also strengthen new competencies and skills to lead effectively. We need sharper sense-making so that we can make better decisions in complex and disruptive conditions. We have to drive change, innovation and ops-tech-digital integration in peacetime and in combat. We have to find ways to do more with less resources. And we must continue to find effective ways to motivate and engage diverse groups of people. Our commanders demonstrated these competencies in their leadership roles during the COVID-19 pandemic, both on the national and SAF fronts, and they executed their missions well. This shows that we are on the right track.

Our experience in the pandemic offers us insights and food for thought. We hope that the accounts of our commanders' experience in this monograph will provoke readers to think deeply about what leaders of SAF 2040 must have to lead effectively in a VUCA-D operating environment.



**DIRECTOR
OF JOINT
OPERATIONS** 180

**COMMANDER
JOINT TASK
FORCE
(ASSURANCE)** 186

**CHIEF OF
MEDICAL
CORPS** 200

**COMMANDER
COMBAT
SERVICE
SUPPORT
COMMAND** 192

**LEADERSHIP
REFLECTIONS
FROM THE EDGE**

DIRECTOR OF JOINT OPERATIONS

In the final analysis, it was the strength, commitment, and resourcefulness of our people that got the job done.

MG Neo Chin Wee David



My first tour in Joint Staff was as a junior Staff Officer in JOD and I was honoured to have contributed towards Ops FLYING EAGLE, the largest foreign deployment of SAF troops back in 2004. It was ironic that my last tour in Joint Staff would be as Director of Joint Operations, and have the opportunity to lead the SAF's operations during the pandemic at the strategic and organisational levels. These are six of my reflections.

ALWAYS READY

The then-COL David Koh, Deputy Head of Joint Operations, who led the SAF's support for our nation's fight against SARS, used to give me this advice: "David, in ops, every morning, you should listen to the BBC when you drive to work to find out what's going wrong with the world, and have a big breakfast at the canteen, because you never know when you are going to be able to eat next!". The SAF has in place a number of standing and contingency operations. Anything ranging from aircraft intrusion to terrorist attacks to chemical leaks, we have a contingency plan for it, exercised it, and are ready to go. It is one of the most well-prepared organisations in the world. As DJO, my purpose is to ensure the SAF is ready. We are always ready to be called to action.

Unlike what they teach you in schools or what you go through in training exercises - in a crisis, nobody hands you an Operations Order or gives you a mission. Rather, you have to make sense of what is happening around you, study the data, and determine if you need to act. So in early January 2020, on learning about the outbreak of pneumonia in a market in Wuhan, the team at JOD dusted up our contingency plans for an Influenza Pandemic (yes, this is one of the contingencies!), and together with the Services' Operations Departments, started making plans for the SAF: Plans for both business continuity, so that the SAF could continue to keep Singapore and Singaporeans safe and secure, and plans for making contributions to WoG should we be called upon. This was a good 20 days before the Homefront Crisis Executive Group (HCEG) convened, and 30 days before the World Health Organisation declared it a Public Health Emergency of International Concern. No matter what is happening in the world, the SAF must be Always Ready.

THE PURPLE SAF

Throughout the pandemic, the Services' Head of Operations — BG Andrew Lim, ACGS (Ops), BG Seah Poh Yeen, Head, Naval Operations, and COL Lim Kok Hong, Head, Air Operations — and COL Lim Yu Chuan, Head, Joint Research, would gather in my little corner in MINDEF-SAF Operations Complex (MSOC), where I would update them on the latest data and national policy thinking, and we would collectively make sense of the situation, bring up Service-specific issues, and contextualise it into

what needed to be done for the SAF. These huddles would be short, fast, and effective, lasting no more than 15-30 minutes each time, and was where ops policies regarding posture, isolation regimes, and measures would be made. The focus of the Services' Head of Operations were always on how do we come together and design policies that would be simple and crisp at the SAF level so it would be easy for the ground to execute, and give enough room for the Services to add on specific measures where needed. And this spirit of integration and collaboration would continue throughout the pandemic, from Army stepping up to provide accommodation for RSAF, RSN and C4I Critical Ops Units when isolation regimes were implemented, to RSAF and RSN folks stepping up to contribute in some of the Army-led Task Forces. Underlying it was the trust between the Services - that we could count on each other to help out. While it did not occur to any of us at that point in time, on hindsight, it was a picture of a Joint and Integrated SAF working beautifully together. The Purple SAF.

THE POWER OF THE "LITTLE GREEN MAN"

Those who have served would be familiar with the *Little Green Man*, a small icon played on free-to-air TV that would signal the mobilisation of NS units. The SAF is a conscript armed force, and draws into it citizens from all walks of life. It is a big melting pot, where regardless of race, language, or religion, we come together to learn the common language of defence for our nation.

This common language, and common friendships acquired through NS was one of the most important yet undocumented success factors in our nation's ability to manage the outbreak. The power of the *Little Green Man*.

In early April 2020, following outbreaks in several migrant worker dormitories, the SAF was asked to lead an interagency task force to handle the situation. The scale of the task was huge – we had to manage 43 dormitories housing more than 300,000 migrant workers. The largest housed 24,000, while the smallest housed a few thousands. This was clearly beyond what the SAF could manage. We needed the help of the Regional Health Clusters to marshal the national medical resources to care for our migrant workers.

I told BG Seet Uei Lim, the Commander of this interagency JTF(A), that we needed to mobilise the national medical resources. We called the Chief Operating Officers of National Healthcare Group, SingHealth, and National University Health System to meet us at JTF(A) HQ, to explain to them the scale of the problem, and what we thought needed to be done to prioritise and organise our national medical resources to manage the outbreak, and the support we needed from them. This was important to avoid overwhelming our hospitals – in particular the ICUs - so that healthcare services for non-COVID-19 ailments could continue.

BG Seet and I discussed how to approach this, and our conclusion was we should avoid as much military jargon as possible. To our surprise, at the meeting, the reply we got from them was "Sir, just give us the Ops Orders! We are all Medical Officers, we have served before. We know what the deal is. Just tell us what to do and we will get it done!"

It was not just JTF(A). In almost every agency and ministry where we were asked to contribute, we would find people familiar with our common language, and the common way of working and organising, which brought great order and effectiveness during a time of great chaos. More often than not, we will meet those who had served with us – Dr Kenneth Mak, Director Medical Services, had served with us as the Deputy Commander of CSS Command. Dr Andrew Aw, who was tasked to support JTF(A), had served with me in 3rd Singapore Division. This common language, and common friendships acquired through National Service (NS) was one of the most important yet undocumented success factors in our nation's ability to manage the outbreak. The power of the *Little Green Man*.

WHOLE-OF-GOVERNMENT – STRONGER TOGETHER

While the SAF played an important role in the national fight against COVID-19, we could only do so because we were a part of the WoG team. The scale of the crisis made it clear that the resources of the SAF alone would not be sufficient for this national fight. We had to rely on Ministry of National Development colleagues to marshal the national hotel resources to serve as quarantine facilities, MOH colleagues to marshal the national testing and healthcare resources, and colleagues from Singapore Police Force (SPF) to deploy as FASTs in the migrant worker dormitories together, amongst others. Having strong networks and friendships with our WoG colleagues helped us get things done effectively and efficiently. Often, a phone call was all it took to get things done. Should the SAF ever be called to the ultimate task of defending our country, we would have to similarly work together with our WoG colleagues to mobilise our national resources for the defence of Singapore. In this regard, it is important for us to form our networks and friendships with our WoG colleagues in peace.

OPS-TECH TOGETHER

One of the first phone calls I received during the operation was from Ngiam Le Na, Deputy Chief Executive (Operations), DSTA. “I heard that the SAF is activated. How can I help?”. Within a few hours from that phone call, DSTA engineers and DSO scientists would be at MSOC. My Ops people would explain to them what was happening, where the problems were, and what data they needed to do their jobs better. The scientists and engineers would dutifully take notes, and within a short time, come back with mock-ups and dashboards to iterate with our Ops guys on what would be useful. This would characterise the nature of our ops-tech collaborations. Thereafter, wherever the SAF went, the DTC would be there to support. It was this employment of technology and sense-making that would help us understand how well operations were running, identify chokepoints, and where necessary, work with our MOH colleagues to review the relevant policies. For example, the dashboard would show us that there were a number of COVID-19 patients who were staying for extended durations in the hospitals and care facilities, well beyond

Having strong networks and friendships with our WoG colleagues helped us get things done effectively and efficiently. Often, a phone call was all it took to get things done.

At every corner and every twist and turn of the pandemic, it was our people, working as a team, who delivered against the odds.

the documented 21-day infection period. On examination with MOH colleagues, we found that some patients would shed viral fragments, and hence not achieve the two negative tests required for discharge even though they were no longer infectious. This led to a policy review, and resulted in the time-based discharge policy that freed up bed spaces for new COVID-19 patients, better matching our hospital resources to those who needed it, and at the same time allowing patients who have recovered and were no longer infectious to return to their families. Throughout the pandemic, our tech people would be working hand-in-glove with ops, whether at the Forward Deployed Labs, the Task Force headquarters, or in getting pulse oximeters to the migrant workers in the dormitories.

CONCLUSION - PEOPLE ARE EVERYTHING

Finally, my most important reflection is that people are everything. In the final analysis, it was the strength, commitment, and resourcefulness of our people that got the job done. At every corner and every twist and turn of the pandemic, it was our people, working as a team, who delivered against the odds. Therefore, it is our role as leaders to lead our people well, nurture them, and help them achieve their fullest potential. For I have no doubt that in any future crisis or fight, it is our people who will prove to be our decisive edge that achieves victory for Singapore and Singaporeans.

COMMANDER JOINT TASK FORCE (ASSURANCE)

I saw women and men from different creeds and all walks of life United by a Mission, committed to Unity of Effort, and serving as One United People.

BG Seet Uei Lim



On 6 April 2020, an SAF team was hastily cobbled to lead an Inter-agency Task Force. The specified task was to manage the rapidly developing COVID-19 outbreak within our migrant worker PBDs. We quickly appreciated the situation and conducted Battle Procedure the next morning. By Wednesday 2359hrs, we deployed 43 FASTs, comprising both SAF and Home Team officers supported by Ministry of Manpower (MOM) to the 43 PBDs. The sense of duty, operational readiness and tactical competence of our people were admirable. Much of our success today rested on the selfless service and sacrifices of our staff and deployed FAST.

The first step was to understand the “enemy” we were fighting to suppress, and the migrant workers we were working hard to protect. This virus was novel and little was known then why it spread so fast and so far. There were many questions our epidemiological experts were grappling to explain. To sense-make and issue planning guidance, we went through the rigour of Mission Analysis and concluded that (like SARS in 2003) this was a crisis of fear for our migrant workers: fear of infection; fear of losing livelihood; and fear that nobody cared.

We named ourselves Joint Task Force (Assurance) to reflect the need for unity of effort amongst disparate entities and accentuate our Mission: to assure our migrant workers and provide care for them during this pandemic, so as to ensure public health and order.

To address the fear of infection: our FASTs supported dormitory operations; educated PBD residents on the importance of personal hygiene; enforced Safe Management Measures; facilitated the establishment of Medical Posts; ensured the isolation of COVID-19 positive patients; and extracted close contacts to quarantine facilities. To tackle the fear of losing livelihoods: we worked with employers to ensure that our workers were paid at least part of their basic salary; we helped workers open bank accounts so that salaries could be given out safely and e-remittance could be performed; and for those who needed to physically send money home, we arranged regular remittance services in the dormitories. To demonstrate our care for workers: we celebrated festivals such as the Hindu and Bengali New Years, Hari Raya, Vesak Day, and Dragonboat festival with special meal arrangements; and developed targeted communication packages to assure them in their native tongue. We attempted to humanise our policies by reminding ourselves that at the end of every swab stick was a fellow human being who helped build our homes.

We named ourselves Joint Task Force (Assurance) to reflect the need for unity of effort amongst disparate entities and accentuate our Mission: to assure our migrant workers and provide care for them during this pandemic, so as to ensure public health and order. The team did an impromptu team-building and mass check-in on the first morning, so as to at least know each other's names.

ACCOMPLISHMENTS

We were clear that this was not just a public health crisis to combat; it was also a potential crisis of fear we had to address. We were to serve as "forward defence" for our Public Health Institutions and stabilise the situation in the dormitories. We had a good plan, a great team, and our national leaders were firmly with us. Senior Minister and Coordinating Minister for National Security Mr Teo Chee Hean and our MINDEF/SAF leadership paid close attention to our plans and actions, supported us with resources, and empowered us to carry out our duties.

JTF(A) very quickly Formed, Stormed, Normed, and Performed almost simultaneously. The gravity of the crisis

meant that there was no luxury of time to get familiar with each other. The Professionalism, Discipline, and Fighting Spirit of team members drove the 24/7 battle cycle. Some did not have dinner with their families until the Sunday after "post-Circuit Breaker" Phase II (Day 77 of operations, which was incidentally Father's Day).

We had exceptional Logisticians. Within two weeks, we fed 210,000 workers three square meals in 43 PBDs across our island. We went the extra mile to ensure that our meals catered to various ethnic palettes. We conducted food surveys and brought chefs down to carry out food tasting to satisfy different preferences. We imported pooni rice for our Bengali PBD residents, and adjusted our curries and dhals. Our logistical efforts won much praise and appreciation from the workers we served.

This was truly a Whole-of-Society effort. Besides government agencies, JTF(A) also worked with NGOs such as the Migrant Workers Centre (MWC) and Healthserve in the provision of basic necessities and mental health support, and Temasek Holdings generously provided oximeters and swab testing capabilities. Our collective efforts helped Save Lives and Protect Livelihoods.

CHALLENGES

The team was Mission focused. In a Coalition, with disparate cultures and expertise, we need to establish common understanding and lexicon, shared purpose and procedures, and advance in a firm but fair pace. The tension was in balancing competing Policy objectives:

maintain essential services; test all workers quickly; clear the dormitories of the virus expeditiously to return workers back to work; and keep case count low so as to avoid overwhelming our healthcare system and alarming the public.

The challenges were manifold: things take time to plan, organise and execute; serology required maturity; matching nominal rolls amongst stakeholders with different versions and formats; the inefficiencies of clearing infection from the widely dispersed 1,140 Factory Converted Dormitories and 168 Construction Temporary Quarters; etc. Time must be invested to first appreciate the dynamic situation, translate evolving Policies into concrete plans, and communicate Orders for deployed forces (FAST, medical and testing teams) to act. Patience is needed to allow plans to bear fruit.

The number of fatalities amongst our migrant worker population was not more than the pre-COVID period. This may be attributed to the active surveillance of our deployed Medical Teams. But every death, COVID-19 related or otherwise, was a grim reminder for us to watch out for high risk groups, and be extra vigilant in our duty of care.

We tracked incidents within the dormitories. The statistics suggest that scuffles, disputes, and misdemeanours were within pre-crisis statistics. But mental health concerns were emergent, particularly after the first month, and in the isolation facilities. Our migrant workers originate from active and communal cultures, and confinement bred cabin fever. Of particular

worry were suicides. We tasked our SAF psychiatrists to lead efforts to proactively engage our migrant workers. We worked closely with professional counsellors (from Institute of Mental Health (IMH), MWC, and Healthserve), and ensured the timely return of workers who had completed their isolation and quarantine period back to their dormitory of origin.

LESSONS

Our People readily answered the call of duty and were swiftly up-in-arms to action. Coalition operations requires trust, respect, and understanding. It is a patient process requiring leadership by example with empathy and engagement. In our Decision-Making process, we need to be inclusive and sensitive, and be careful in our choice of words.

C2 comprises three elements. First, Organisation. JTF(A) HQ was organised as an Operations Hub with Cells and Centres (e.g. Strategic Plans Cell, Anticipatory Ops Cell, Current Ops Cell), and our ground forces were organised along Task echelons (e.g. Task Force, Task Group, Task Unit). We found this effective and efficient. We commanded by Intent, and empowered sub-units to make tactical decisions. For instance, each PBD was unique, in varied conditions, and situated in different landscapes. When the FASTs were first deployed, each team conducted a needs assessment, and decided on the priority of tasks based on the particular needs and requirements of the dormitories. Most of the FASTs quickly concluded that the first task was to ensure hygiene, as the dormitories

were not designed for full occupancy and 24/7 living, which resulted in choked sewage systems and overflowing waste bins.

Second, C2 is about Processes. The SAF Battle Procedure provided a comprehensive, methodical, and disciplined framework for Collective Appreciation of Situation, and the development of Courses of Action. We issued Orders at each phase to synchronise efforts, and direct the wide span of activities. We conducted wargaming to ensure smooth transitions, and worked out responses to contingencies. In our execution, we developed process loops for consistent delivery of outcomes, and Communications was a key line of operations. The Action Learning Process was interwoven into the fabric of our battle rhythm, and case studies were shared for lessons learnt. We believed it was okay to make mistakes (as there was no precedence to follow), but never twice.

Third, C2 requires Resources. The AOR process was adhered to, and we kept an eye on the budget. Innovation was encouraged: the Mobile Swab Station and Mobile Express Scanner were ground up ideas that ensured Mission success safely. Technology was a key enabler, and the deployment of MedTech helped save lives. Ultimately, people are our most precious Resource. I was most impressed with how our young Officers on vacation attachment were able to quickly ingest data and analyse trends, to rapidly develop targeted testing strategies and dormitory clearance plans. We should continue investing in our talents to pursue Science, Technology, Engineering, and Math. Our junior officers devoted themselves to the Mission, worked together in concert, and adapted tactical

actions in the face of dynamic situations to meet higher Intent. They give hope for the continued security and success of Singapore. We must persist in nurturing and inspiring them to serve and lead.

CONCLUSION

In response to the stress of delivering competing Policy objectives quickly, the dictum “slow is smooth, smooth is fast” guided the team to make sure we thought through the trade-offs, weighed the consequences, and deliberated the alternatives before drafting Orders for the ground to carry out. The FASTs often gave feedback that plans were constantly changing, such that the deployed forces could neither cope nor follow through. The discipline of going through our Battle Procedure ensured constancy and consistency of efforts.

Given the rapid spread of infection and paucity of information in the early days of April 2020, our then-Chief of Medical Corps famously said, “don’t let perfection get in the way of a solution.” Indeed, there were times we had to make the best use of available data, stick to our principles, and collectively agree on the best course

of action. Our Process Loops are useful heuristics to prevent paralysis.

At the initial stages of the operation, when infected cases peaked past 1,000 for days in the third week of April, and the enormity of the task overwhelmed the team, on a weekend morning after Command and Control Group (CCG) Meeting, a young Officer quoted Tolkien: “oft hope is born, when all is forlorn.” Then on, we celebrated small successes and progress raised optimism. Leaders must unite and give our people a Vision. We need to frame wicked problems in context, and complex solutions in understandable bite-size packages for staff to translate into actionable plans for ground units to execute. Our Operation Orders is a useful format to do so.

This operation is a manifestation of our Values as a society: that Singapore cares for our people, regardless of citizenship. It has been a humbling experience. I saw women and men from different creeds and all walks of life United by a Mission, committed to Unity of Effort, and serving as One United People. If we can continue this miracle, there is hope for our future and our children.

To Lead. To Excel. To Overcome.

Ultimately, people are our most precious Resource. I was most impressed with how our young Officers on vacation attachment were able to quickly ingest data and analyse trends, to rapidly develop targeted testing strategies and dormitory clearance plans.

COMMANDER COMBAT SERVICE SUPPORT COMMAND



We will strive to build the next generation CSSCOM that is Better, Smarter, Faster. One that is Mission-ready, Data-enabled and Respected!

One Heart, One Mind, One CSS!

BG Terry Tan Koon Woo

I wrote this reflection in 2020 to share with my CSS community. At that time, never would I have predicted the circumstances we were in as a result of COVID-19. We went through two months of “Circuit Breaker”, completed Phase 1 and started on Phase 2 of our operations in support of the WoG, and looking forward to Phase 3 — a semi-return to normalcy. We were in the midst of an economic downturn, borders were tightening globally, and we were forced to change our way of life. Nationally, even the General Election and NDP that we were used to had to change. No one could have anticipated the speed, scale and impact COVID-19 had on training, operations and overseas exercises in the SAF, and in particular what our Army was used to.

The resurgence of COVID-19 cases in August 2021 has triggered the Nation to shift back into P2HA, with tighter control measures imposed on our way of life and an increased demand for aggressive testing, vaccination, care facilities and systems. The national healthcare system was once again under pressure, and the SAF was called upon to respond to the crisis. COVID-19 has thus far been one of the most disruptive event in recent memory.

Our fight against COVID-19 started in end-January 2020 when CSSTF was tasked to pack and deliver 5.5 million surgical masks within 48 hours for distribution to all Singaporean households through 89 Community Centres/ Residents' Committees. For the next six months, 10 CSSTFs were formed to support SAF COUs, MOH, MOM, Ministry of Trade & Industry (MTI), Enterprise Singapore Group (ESG), NTUC Enterprise and other WoG agencies. COVID-19 illuminated the need for CSSCOM to be Better, Smarter, Faster in support of the Army and the SAF as we build towards a CSSCOM that is Mission-focused, Data-driven and Respected.

A BETTER CSSCOM

Putting People First

The key success factor for CSSCOM is our people. The successful execution of our mission by CSSians builds trust and respect from our community. Our people possess strong values, teamwork and work humbly behind the scenes to accomplish the mission. They do the right things and always do things right. We coin these attributes as our CSS DNA, and we continue to nurture them today through the way we organise, train and care of our people.

CSSCOM is type-organised in peace and task-organised in operations. This is our strength as we are able to build deep domain expertise in peace while being agile in operations. In short, what we do in peace = operations = war. In response to COVID-19, we empowered integrated CSSTFs, configured based on mission context and forward deployed them to lead,

plan and execute end-to-end CSS operations. These task forces (TFs) collaborated with our integrated operations centre (which we called CSSONE) as well as the defence industry and technology eco-system. We were able to surge for operations seamlessly and responsively because of our partnership with our larger CSS eco-system.

Our CSS leaders are trained in peace for their roles in crisis, operations and war. Our response to COVID-19 today is evidence-based, calibrated and well-informed. This was not the case in 2020, when the world was just learning about the virus and the uncertainties that came with it. Our leaders, our organisation and our engagement with stakeholders had to adapt quickly to the evolving situation in real time – this skillset does not come easily. Leadership training through leading Forward Support Groups (FSG) for overseas exercises and Task Forces in support of national and international events are critical enabler to deliver agile and adaptive CSS leaders who embrace leading multi-disciplinary team and thrive in operating in multi-stakeholder environments. Putting people first means we must train them well for any mission that come their way.

We also set up Care Task Force to take care of the physical and emotional needs of our soldiers and their families. My Defence Psychologist and his team also conducted surveys to understand our soldiers' morale and pain points so that we could adapt along the way. My Safety Team enforced safety, compliance on the ground, and protected our soldiers' well-being.

Furthermore, I challenged Maintenance and Engineering Support (MES) to develop ops-tech solutions to protect our people operating at the frontline so that the operational risks were mitigated as much as possible. I focused this TF on developing meaningful, productive and responsive solutions for dormitory operations, where risks of transmission were highest then. For our people to focus on the mission, we must care for them, support them and look after their families.

Resilience is a necessity

COVID-19 delivered a massive shock to the global and national supply chain system. Our instinct to plan for the worst case, such as stockpiling, diversification, scenario planning and exercises, and a seamless peace-to-ops system allowed CSSCOM to respond well to COVID-19. The SAF was able to conduct operations and training with minimum disruption while continuing to house and sustain our SAF COUs across camps to maintain a high level of operational readiness. We also supported the WoG and WoN fight against COVID-19 in the area of sourcing and equipping, contact tracing, dormitory management, emergency housing, medical care and ops-tech solutions.

Going forward, we need to continue to build resilience into our critical resources (e.g. a need for Smart Supply Chain Intelligence), our workforce (including contractors and sub-contractors), our systems and processes (e.g. rapid procurement) and overall, a strong peace-to-war ecosystem. CSSCOM

alone cannot support the nation – we must partner with the larger WoG and industry ecosystem to do so. Two such examples: LTC (NS) Gabriel Tang led a team into GovTech to support the supply chain planning, development, equipping and Operations & Support of TraceTogether and SafeEntry Gateway, which equipped the nation with the means for effective contact tracing; SLTC (RET) Lim Soon Meng also led a team to partner with MTI and develop contingency plans for global supply chain disruptions. The team jointly executed one of the plans that ensured the continuous flow of essential supplies and food into Singapore at the time. These partnerships are essential for us to scale up for operations rapidly and sustain our capabilities during a prolonged crisis.

Our people must be ready to take ownership, fight red tapes, exercise discipline and work together with our partners from peace to war. CSSCOM must also deliberately invest and build our defence ecosystem to support us in peace, in emergencies, in tension and in war. We must never leave this to market forces that will tear, divide and compromise our capability, resilience and sustainment.

A SMARTER CSSCOM

Digital is critical

COVID-19 accelerated the rate at which technologies were employed and pushed for further digitalisation. We witnessed how digital, mobile and collaborative tools were developed and used to combat the virus spread. Across the nation, technologies and apps were rolled out rapidly to solve real problems on the ground. To minimise

We must deepen our expertise, strengthen integration and professionalise our people. It is equally important that we constantly identify new growth areas and build the necessary expertise so that we can remain relevant.

human contact, we also saw manual processes being either automated or innovated to be done remotely.

In CSSCOM, our Army Engineers co-developed an automatically triggered thermometer to take the temperature of personnel at guardrooms remotely so as to reduce manpower demands and risks. Our CSSians understood the operational problems and solved them decisively.

The commercial sector is leading technology advances. Artificial Intelligence, Data Analytics, Machine Learning, autonomous capabilities and unmanned technologies will continue to lead and influence how CSSCOM operates across the peace-to-war continuum. We must ensure that our wartime capabilities are designed for day-to-day applications and operations as well. Again, this boils down to making sure that what we do in peace = operations = war.

A Smarter CSSCOM is one that embraces digitalisation and technology in our daily tasks and in our warfighting capability.

We must embrace Design for Analytics in everything we build. We must use data to enable real-time situational awareness, support end-to-end integration, enhance collaboration, facilitate smart decision-making, and acquire quantifiable feedback. To achieve this, we must elevate the Technology and Digital Quotient (TDQ) of our CSS community. It is not about understanding what makes technology and digitalisation work, but how we use technology and digitalisation and how that technology and digitalisation can solve problems and create possibilities. Digitalisation and technologies are no longer a good-to-have but essential capabilities that CSSCOM must possess and that our soldiers must embrace.

Expertise is valuable

A Smarter CSSCOM also means building the right expertise that is valuable not only to the SAF but also the WoG and WoN. We are one of the few outfits at the national level able to execute logistics and medical operations at scale, at speed and as one.

HQ CSSCOM stepped up CSSONE, our integrated operations centre, to C2 the entire operation 24/7. On supply chain and logistics, we executed emergency procurement, set up accommodations and partnered with industries to create the capacity to house, feed and sustain the migrant workers. On distribution and freight operations, we packed and distributed masks to every household in Singapore, worked closely with MTI to manage supply chain and shipments from other countries back to Singapore and supported NTUC on warehousing, cross-docking and distribution operations. On engineering and maintenance, we developed ops-tech solutions to solve real problems on the ground. On medical services, we helped to extend medical care to the nation at the peak of the pandemic. Finally, we deployed teams from our training institute to two dormitories to help stabilise them before Joint Task Force (Assurance) took over. In doing so, our teams developed a Dormitory SOP version 1.0 to guide the Dormitory Management Teams and conducted ops-learning to refine our capabilities along the whole journey.

This expertise did not happen by chance. Our capabilities were built painstakingly over the years. We must deepen our expertise, strengthen integration and professionalise our people. It is equally important that we constantly identify new growth areas and build the necessary expertise so that we can remain relevant.

Learning and adapting are constant

Prior to this, I did not expect CSSCOM to be able to sustain migrant workers, operate CCFs, and develop plans collectively with WoG. We adapted to the new operating context quickly and translated them into operational processes that we continued to refine through the mission. This prepared us well when the resurgence of COVID-19 cases strained the national healthcare system and the Medical Task Force from HQ Army Medical Services was called upon to augment two COVID-19 Treatment Facilities in NTUC Health Nursing Home (Tampines) and Renci Community Hospital.

Moving forward, we will continue to build the necessary capabilities to contribute beyond the SAF and design our military assets for dual usage in national emergencies and support SAF missions. COVID-19 has taught us to keep an open mind, be eager to learn new things, partner, collaborate and find creative ways to apply prior knowledge and our war machines to new context.

On that note, CSSCOM will need to constantly learn, partner, adapt and be smarter. Simply solving problems will not be enough, we need to create possibilities. We need to learn new skills and competencies. Transport leaders will master freight management; Supply supervisors will master facility management, institutional feeding and manage retail operations; Army Engineers will level up on advanced manufacturing,

coding, software development, AI, 5G and Cloud; Ammunition experts will familiarise with advanced weapon systems and develop training ammunition simulators; and paramedics will plan and manage medical-logistics operations. This will be the new mindset for our future. Our new normal.

A FASTER CSSCOM

Leadership forward

CSSCOM has always put our best people forward to lead from the front. We put our formation Chiefs to lead operations supporting international events and unit Commanding Officers to lead FSGs. We did the same for COVID-19. We deployed CSS leaders to their specific missions having full confidence that they would be able to complete their mission and navigate through the initial chaos quickly. Strong leaders such as ME6 Anthony Chor managed to set up a system to manage, feed and care for one of the largest dormitories in Singapore within days and handed over a working system to JTF(A). Anthony and his team continued to develop tech solutions to help the migrant workers at the frontline. Their forward leadership made a difference to the lives of the migrant workers in the dormitories. The willingness to boldly take the helm despite not knowing what they were getting into. Encourage courage. This is an attribute we want to see in future CSSCOM leaders.

Creativity makes things happen

Leaders need to spark creativity, ignite the intrinsic motivation of those we lead and influence to make things happen on the ground. Crisis requires courage to try, to take risks and to challenge cumbersome processes, structures and status quo. The greatest killer of creativity and innovation is our desire to keep things the way they are.

As the swab testing requirement surged at the national level, our team of engineers worked tirelessly with DSTA and ST Engineering Land System (STELS) to convert our F550 Combat Ambulance into Mobile Swab Station in three weeks that could be deployed quickly within 15mins and operated by three men. The solution not only increased the throughput for testing, more importantly, it protected our medical professionals who were required to administer the testing protocol. From technology sourcing, to engineering development, to rapid prototyping, to safety assessment, to Quality Assurance/Quality Control, to acceptance and to deployment into daily operations. They also went on to adapt our Multi-Utility Vehicles subsequently for these missions.

Encourage creativity. Imagine possibilities. Innovate. Improvise. Reject limits. Never be satisfied with the status quo. Aim beyond. These are key attributes for CSSians.

Speed-to-Market makes a difference

In partnership with MOH and other partners, we established Singapore EXPO as a CCF to provide primary healthcare for recovering COVID-19 patients. We deployed around 100 SAF servicemen and women to operate round the clock within days. Another CSS team, deployed to MOH, developed governance, structure, management and medical protocol to prototype, build, manage and supervise CCFs.

In such a pandemic, speed is of the essence to stay ahead of the curve. Our procurement system is largely designed for governance. However, in the event of a pandemic, the process must be agile to enable fast track procurement and contracting. We managed to achieve a faster speed-to-market in COVID-19 operations because of sheer hard work of our people such as Mr. Melvin Ang, Head Contract Governance Branch. Melvin and his team, supported by DSTA, were astute in cutting contracts rapidly as the operations took shape, even when the demands were non-conventional. For instance, they sourced and deployed interpreter teams in a matter of days to support migrant worker dormitories and SAF camp operations. This was no easy feat, but because of their professionalism, we were able to rapidly acquire commercially-available solutions to achieve mission success.

CRISIS REFOCUSED OUR CSS COMMUNITY

CSSCOM was deeply entrenched in our WoN fight against COVID-19. We leaned forward to support SAF TFs, MTI, ESG, NTUC, MOM and MOH in the areas of leadership, planning, execution and ops-tech solutions. We also helped equip and support other government agencies in their respective missions. I am proud of the remarkable quality of our CSSians. We have established ourselves as a community that is relevant, caring, professional and resilient.

We will strive to build the next generation CSSCOM that is Better, Smarter, Faster. One that is Mission-ready, Data-enabled and Respected!

One Heart, One Mind, One CSS!

CHIEF OF MEDICAL CORPS



The leadership lesson is the preparedness mentality. The man on the street will not worry about black swan events. It is the leader's unpopular job to be paranoid, to save for rainy days, and to delay gratification. Such a mentality is behind many of the things we take for granted.

COL (NS) (DR) Lo Hong Yee

There are four noble truths in Buddhism, five pillars in Islam and ten commandments in Christianity. These religious edicts have a deep resonance with mankind and have remained relatively constant over time.

The laws of physics and mathematics are universal. The law of gravity on an apple is arguably the same whether it is on earth, or any celestial body with a defined mass. The Pythagorean theorem is also irrefutable whether you are in one galaxy or another.

In contrast, one cannot say the same for “leadership”. There is a vast amount of knowledge on leadership — theories, mantras, heuristics, models and creeds. These are neither constant nor universal. Some may be applicable to one culture, but become irrelevant or irreverent in another. Some may be useful for one circumstance, but become counter-productive or destructive when the situation changes. It is against this backdrop, and with trepidation, that I humbly offer a few observations about leadership, gleaned from my personal journey during the COVID-19 pandemic.

In preparing this essay, my research took me to an earlier work entitled “The SAF SARS Diary” published 17 years ago. That diary chronicled the SAF SARS experience scientifically with charts, statistics and flow diagrams. Fast forward to the present day, the information terrain has changed significantly, with much of the science and data freely available in open source literature. What is left then, perhaps, is for me to capture some of the less codifiable but no less important aspects of the crisis, the thoughts and dilemmas, the fears and triumphs, the texture, touch and feel of key decisions. And I shall borrow a few fairy tales to aid me in this delicate endeavour.

Unlike scriptures and scientific expositions, fairy tales are often relegated to the children’s section, passed over as frivolous material, something to be grown out of. Yet, they are often translated into numerous languages, and enjoyed across cultures and ages. There is clearly more than meets the eye with old, wrinkly story tellers. The telling and retelling of these seemingly innocuous tales actually transmits gems, tacit and otherwise, across the generations. Much later in my adult life, I was finally able to appreciate the many leadership lessons hiding in plain sight. Perhaps, as the saying goes, “when the student is ready, the teacher will appear”.

THE THREE LITTLE PIGS

This fable is about how the straw and wooden huts were no match for the big bad wolf, and the little pigs were saved only by the brick house. First appearing in a nursery rhyme by James Halliwell-Phillipps, published in

1886, the moral of the story found its way into many aphorisms, including one by Mr Warren Buffet — “Only when the tide goes out do you discover who has been swimming naked”.

Metaphorically, this “brick house” was usually painstakingly erected by a previous generation. One example is the culture of cleanliness, handed down as the practices of “standby bed” and “area cleaning”. While countries have varying success dealing with the virus, large COVID-19 outbreaks within military installations were less common, despite our communal living conditions. We have to thank our sergeant majors for the hygiene standards indoctrinated at basic military training.

Specific to medical policies that put us in a good stead, the SAF started its annual influenza vaccination exercise in 2009, ten years before COVID-19 struck. Every year, we achieve around 85-90% vaccination rate with little fanfare. Hence, when the mission came for the SAF to vaccinate its people against COVID-19, it felt almost like we had already rehearsed for it.

Similarly for logistics. Our quick response in pushing out the surgical masks to Singaporeans during a time of global shortage was made possible by methodical stockpiling over the years, turning over expired stock, replenishing, and quality control, to make sure that when the tide goes out, we are not found naked.

At a time when people around the world were struggling to keep ICU patients alive with improvised ventilators, we were quietly confident because during good times,

we had squirrelled away a few hundred transport ventilators. While these do not have the full suite of functions, they will do the job of keeping patients alive if their situation worsens. At the request of the Ministry of Health, we delivered them to the public hospitals. Thankfully, the situation stabilised and the transport ventilators did not see action, but our clinician colleagues were relieved that they need not carry the ethical burden of deciding who lived and who didn’t.

The leadership lesson is the preparedness mentality. The man on the street will not worry about black swan events. It is the leader’s unpopular job to be paranoid, to save for rainy days, and to delay gratification. Such a mentality is behind many of the things we take for granted. An example is Lim Chu Kang road which is designed as an emergency runway. Why plan for an emergency runway when Singapore already has so many operational civilian and military runways? Why stockpile surgical masks and hundreds of transport ventilators, when there are so many other pressing demands? Why bother with the annual influenza vaccination when the flu is just a mild disease? Why demand hygiene standards in barracks, when we could outsource this “non-core” function to migrant worker cleaners? These measures were put in place by leaders before us, and it behoves us to do the same, so that whether it is to fend against the big bad wolf, the outgoing tide or the next pandemic, we are prepared.

THE EMPEROR’S NEW CLOTHES

This quintessential cautionary tale against hubris speaks of a swindler hoodwinking not just the king, but his entire populace into believing that they had beheld the world’s finest robe on parade, when their eyes were clearly showing them just an old man in his birthday suit. Written in 1837 by Hans Christian Andersen, children over the ages enjoyed the spectacle when the lies were finally exposed and the stark naked king was roundly humiliated.

In leadership parlance, this tale warns against “groupthink”, where people avoided conflict, despite knowing better, especially in a setting with an overbearing boss. Vanity and pride are major components, where everybody, the king included, claimed that they could see the invisible woven fabric. One error perpetuates the next, until a full blown disaster is imminent.

An example of averting disaster during COVID-19 was how leaders were agile and humble enough to examine the latest evidence, instead of holding on to previously held positions, fearing embarrassment. At the national level, when new findings on viral transmission surfaced, we changed our position to mandate mask wearing. Another episode was the decisive statements and actions surrounding the TraceTogether contact tracing app debate. These were examples of leaders acknowledging that they indeed could not see the invisible fabric.

The secret sauce is the quality of conversations with people playing the roles of the proponent and the opponent; the former speaks with honesty, and the latter, counters with respect.

I sat in numerous meetings held by JTF(A), which was tasked to look after migrant workers. Seldom was consensus reached without a good dose of disagreement. Examples included the methods for testing, whether it was nasopharyngeal swabs, or oropharyngeal mid-turbinate swabs, or saliva, the indications for using pooled samples to conserve the scarce reagents, the mechanisms and durations for quarantine. The secret sauce is the quality of conversations with people playing the roles of the proponent and the opponent; the former speaks with honesty, and the latter, counters with respect.

At a personal level, I also had to deal with vanity. To prepare for the Pfizer BioNTech vaccine, I directed my team to procure a few ultra low temperature (ULT) freezers, so that the SAF could store our own frozen vaccines, giving us operational flexibility. I had under-estimated the efficiency of the cold chain capabilities in the country, which turned out to be so robust that all vaccines could be held centrally, thawed and delivered to vaccination centres every day. The SAF need not deploy our own ULT freezers. Embarrassed by my earlier decision to buy these freezers, which looked increasingly

like white elephants, I continued to try and deploy them at SAF medical centres. After coaxing from my team, I conceded that the ULT freezers would not see much action, and returned them to the main warehouse as back ups. This episode reminded me of the vanity in the fairy tale, except that my team, sensing something amiss, was willing to alert me. All I needed to do was to put aside my pride.

While parading naked in front of his subjects, it took a young child to see past the lies and shout the truth, “The Emperor has no clothes!”. This “young child” is a metaphor for the “ground”, people who know what is going on. Unlike courtiers, young children are not beholden to kings.

Throughout the pandemic, I have witnessed how leaders kept themselves close to the ground. One particular leader at JTF(A) kept copious handwritten field notes, detailing his observations as he spoke with the “young children” on his ground visits. This translated into clarity of thought and good decisions that eventually turned the tide. The lesson is for leaders to be unafraid to re-visit and reverse dated decisions, and listen deeply to the ground in search of the truth.

THE BRAVE LITTLE TAILOR

Many fairy tales paint a distinction between good and evil, catered to young readers who are naive to the varying shades of grey. In real life, such a binary separation rarely exists, and protagonists are often multi-dimensional, such as in the case of this brave little tailor. Published in the Brothers Grimm collection in 1812, the story tells of how a lowly tailor overcomes numerous obstacles, including attempts on his life, to eventually become king. The tailor boasts of killing “seven with one blow”, conveniently omitting that his foes were mere flies. With an inflated reputation and a confidence to match, the tailor attracted giants in many duels who, despite an obvious strength overmatch, were outwitted and outclassed. It tells a story of gumption, confidence, resourcefulness, but also trickery, manipulation, cunning and ambition.

At the start of the pandemic, fear was rampant throughout Singapore. Such an environment prompted leaders at all echelons, despite their own uncertainty, to step up with messages of confidence. It was a statement of defiance, that we too, could defeat “seven with one blow”. The SAF set up task forces to help — JTF(A), MOTF, CSSTF, EHTE, and HSTF. Apart from the task force commanders, ground commanders also stepped up. They had to fight many “giants” — woes and problems which seemed insurmountable. Contact tracing when the R-naught was shooting upwards, food provision for thousands with varied dietary needs, re-housing migrant works in barracks, and to look after dormitories

when they were falling like dominoes to the spread of the virus.

On the medical front, to deploy thousands of pulse oximeters to pick up hypoxia before patients deteriorated, to coordinate the transport and isolation facilities for positive cases, to curate the “single source of truth” for swab and serology results, to set up a “field hospital” in the form of a Community Care Facility, to vaccinate at speed MINDEF/SAF personnel who were required for essential ops. These were the “giants” that we needed to outwit and outclass. Like all grey zone threats, this foe wouldn’t be cowed by a force-on-force method, but must be subdued with operational cunning, nimbleness and more brains than brawn.

One interesting phenomenon was how at the beginning of the pandemic, Singapore was rated as the country with the highest infection count in the whole Southeast Asia. We soon realised that we were extremely efficient at testing. In the face of a laboratory test reagent scarcity, we adopted a different tack. We were careful not to become an ostrich, and dial down the testing, but rather, we used area testing methods like pool testing and sewage testing to help us identify high risk clusters, before zooming in to isolate the individual cases.

Operational cunning carries a slippery slope risk when the ends justified the means, but I observed a high degree of integrity in the decision-making process, preserving the trust and social compact between the leader and those being led. At every stage, the well-being and health of the people were the

primary focus, overriding other political, defence relations and economic calculus. This was evident in another anecdote related to the transport ventilators mentioned earlier. We had enough in the SAF, and shared the excess with the public hospitals in Singapore. But the global shortage also presented an opportunity to strengthen our relations with key foreign partners facing their own ventilator shortages. In the end, it was decided that we would keep all the transport ventilators in Singapore, given the uncertainty of the situation, placing our people's well-being above all else. As a fly on the wall, I understood acutely the dilemma involved in such a decision and was heartened by the well-placed trust.

THE ELVES AND THE SHOEMAKER

The final fairy tale in this essay is also part of the Brothers Grimm collection published in 1812. The story is about little elves helping an old and impoverished shoemaker who is about to wind up his ailing business. While the shoemaker and his wife sleep at night, the elves busy themselves at the workshop, making beautiful leather shoes, which they leave behind every morning as they disappear to rest. This mysterious nightly

affair makes the old couple a comfortable fortune and they decide to stakeout at the workshop to identify their benefactors. The couple see the elves hard at work but also notice that they aren't wearing any clothes. So the couple makes elf-sized shirts and pants, leave them at the workshop, and see how the elves happily put them on.

Ostensibly a whimsical tale of an unexpected windfall for the shoemaker, the fable is actually a tribute to the many little elves who toil while we sleep. And it reminds leaders to always look out for the unsung and unnoticed. Every time we wake up to things that work, clean water from the tap, the toilet flushes, the trains move, we should realise that they are not the result of happenstance. Similarly, when the medical centres open shop to treat flu patients and swab them; the medics and MOs who were not infected by COVID-19 themselves, the dispensary that was restocked every day, the SMS notifications of swab results, the vaccines that go into our arms. These are not by accident. At the peak of the pandemic, medics and MOs adopted a stay-in posture to reduce their infection risk from the community. Healthcare workers donned full Personal Protective Equipment in sweltering two-hour shifts. Laboratory staff

manning their stations, doing PCR tests. IT colleagues working on the electronic medical records to send out the swab results to our mobile phones. Logisticians working overdrive to procure and deliver essentials to the ground. Manpower staff managing allowances and other tokens of appreciation to prop up morale. And NSmen made personal sacrifices showing that they could be counted on in times of need.

Like the old couple who hid at night for a peek, leaders too, will do well to see for ourselves the industry and commitment of those who toil. For not only does it strengthen our conviction to lead, it also affirms those whose labour is often unnoticed, and accords them the recognition they so richly deserve.

CONCLUSION

I return to the "SAF SARS Diary" published in 2004. That article was co-authored by Chief of Medical Corps, the late BG (DR) Wong Yew Sie, and the Head of the Preventive Medicine Branch, LTC (DR) Gregory Chan. The authors gave us a glimpse of their world and it was apparent how similar were the challenges. It was also apparent how the Medical Corps, the SAF

and the country ultimately overcame the odds and the seemingly insurmountable. What the authors and their team had bequeathed wasn't just those pages of writing. The essay was a mere summary the actual treasure trove left behind — the mindset of preparedness, the humility of leadership, the spirit of resilience and optimism, the culture of gratitude, the wisdom of mentorship, the vast stockpiles, the repository of know-hows, the practices of pandemic drills, rehearsals and vaccinations.

Unlike the "SAF SARS Diary", this essay is devoid of statistics and charts, but I hope it has captured the less measurable aspects of our current fight. When we opened the treasure box left by BG (DR) Wong and LTC (DR) Chan, we were heartened to find many tools that helped us tremendously. On behalf of the current team at the Medical Corps, I hope to pass on the same treasure box, replenished and stocked with new tools and insights, to the next team, so that when they open it, they too will find a useful nugget or two.

At every stage, the well-being and health of the people were the primary focus, overriding the other political, defence relations and economic calculus.

Thank you for packing the
out to those in need.
Singapore is the best

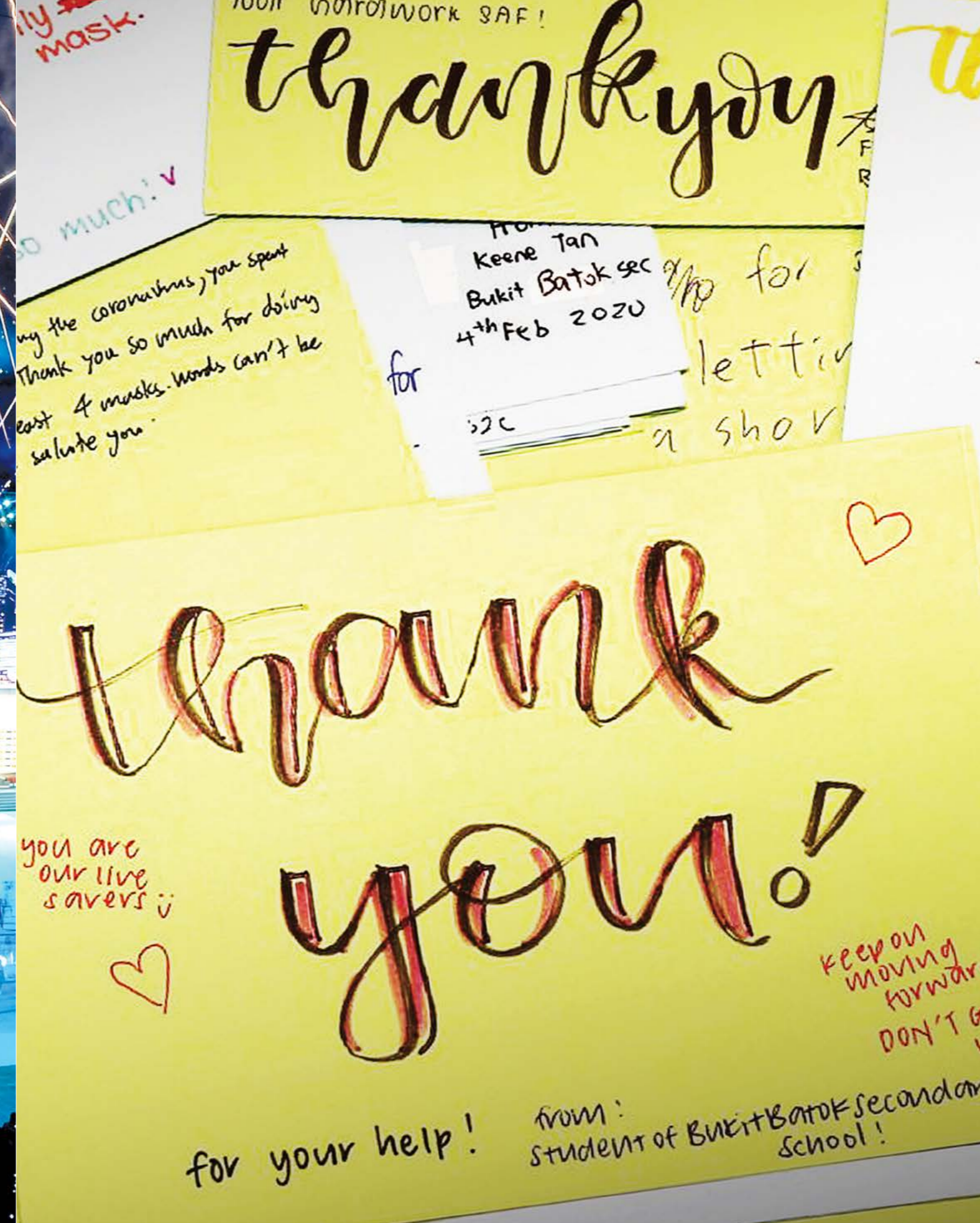
To: The SAF personnel
For packing all the mask and
RCs & CCS.
The mask really help a lot of family
out there who really need the

Mim ALLOW me to salute to you.
Once again, thank you
Wong Shi Yan
Bukit Batok Secondary School
4/2/2020
working safe despite having
mask masks for Singapore.
has at 1
n. So I

SAF personnel

Thank you for going out of your way to help people in Singapore to get
air masks. We really appreciate your hard work, spending hours standing and
packing masks just for us.

Thank you!!





CALL OF DUTY

Health Surveillance Task Force
2020

From day one, the team had shown us what great leadership is. They led by example and did all that they could to ensure things were in order. You have my utmost appreciation, having made so much of a difference and showing such dedication and commitment throughout your deployment.
Mr Tony Lee Hui
Ministry of Manpower

The team has exhibited outstanding professionalism and gone above and beyond their duty to ensure that the operations are compliant and able to run smoothly in a short amount of time.
Mr Maszar bin Mohamed Zakar
Central President Fund Board

I would like to express my gratitude to LTC Andy Lim and his dedicated men. Efforts to look into and after the well-being of the residents were not only efficient, but also expedited sensitively and with much consideration. Such dedication and thoughtfulness went a long way in ensuring smooth operations.
Ms Lorraine Paul
Tripartite Alliance for Dispute Management

To the FAST team at Homestay Lodge, thank you for being awesome, caring and supportive in our differences in our individuals. Despite the differences in our specialties, the role that each and every one of you played is invaluable. I'm grateful for all the team's effort.
Ms Har Nita
Ministry of Manpower

I would like to thank the FAST team led by LTC Andy for their incredible work. I was impressed by their swift decision making and accurate abilities, always making timely and accurate decisions on the ground, how they were able to plan ahead before critical situations arise. Most importantly, LTC Andy and MAJ Jonathan were always on the lookout for the well-being of the staff deployed there.
Mr Koh Chee Wee
Ministry of Manpower

The team (from left to right): MSG Lee Jianming CPT Lee Ming Kenny, LTC Andy Lim, CPT Koh Chong Tin, 3WO Wong Hong Wei, MAJ Jonathan.
Cory, A/C Johnny Ek

It was an honour to serve with the team at Homestay Lodge. Everyone carried out their roles with commitment and professionalism. 3WO Wong's willingness to support the team inspired me to do more for them, while IWO Johnny's presence is an asset to the team especially when we were dealing with caterer providing food for migrant workers.
Mr Hui Chee
Ministry of Manpower





ABBREVIATIONS

ACRONYM FULL TEXT

ACGS	Assistant Chief of the General Staff	CSSTST	Combat Service Support Tech Support Team	HSTF	Health Surveillance Task Force	ORBAT	Order of Battle
AIC	Army Information Centre	CSSECOM	Combat Service Support Command	ICT	In-Camp Training	P2HA	Phase 2 Heightened Alert
ALP	Action Learning Process	CSSTF	Combat Service Support Task Force	ICU	Intensive Care Unit	PBD	Purpose-Built Dormitory
AMB	Army Maintenance Base	CTC	Contact Tracing Centre	IPPT	Individual Physical Proficiency Test	PCR	Polymerase Chain Reaction
AQI	Al-Qaeda in Iraq	DAR	During Activity Review	IPT	IPPT Preparatory Training	PSD	Public Service Division
Army Int	Army Intelligence	DFC	Data Fusion Centre	JOD	Joint Operations Department	RIMPAC	Rim of the Pacific Exercise
ASseT	Accompanying Sea Security Team	DJO	Director of Joint Operations	JTF(A)	Joint Task Force (Assurance)	RSAF	Republic of Singapore Air Force
ATEC	Army Training Evaluation Centre	DORSCON	Disease Outbreak Response System Condition	MINDEF	Ministry of Defence	RSN	Republic of Singapore Navy
BAR	Before Activity Review	DSO	DSO National Laboratories	MO	Medical Officer	RT	Remedial Training
BHAG	Big Hairy Audacious Goal	DSTA	Defence Science and Technology Agency	MOH	Ministry of Health	SAF	Singapore Armed Forces
BMT	Basic Military Training	DTC	Defence Technology Community	MOM	Ministry of Manpower	SAR	Singapore Armoured Regiment
BMTC	Basic Military Training Centre	EHTF	Emergency Housing Task Force	MOTF	Medical Operations Task Force	SARS	Severe Acute Respiratory Syndrome
BP	Battle Procedure	ESG	Enterprise Singapore Group	MRTT	Multi-Role Tanker Transport	SCE	Singapore Combat Engineers
C2	Command and Control	FAQ	Frequently Asked Question	MSF	Ministry of Social and Family Development	SHN	Stay-Home Notice
C4I	Command, Control, Communications, Computers and Intelligence	FAST	Forward Assurance and Support Team	MSOC	MINDEF-SAF Operations Complex	SIB	Singapore Infantry Brigade
CCF	Community Care Facility	FCC	Fitness Conditioning Centre	MSS	Mobile Swab Station	SIR	Singapore Infantry Regiment
CDF	Chief of Defence Force	FDL	Forward Deployment Laboratories	MVP	Minimum Viable Product	SMM	Safe Management Measures
CO	Commanding Officer	FSG	Forward Support Group	MWC	Migrant Worker Centre	SOP	Standard Operating Procedure
COA	Chief of Army	HPB	Health Promotion Board	MWCM	Migrant Worker Conveyance Monitoring	ULT	Ultra Low Temperature
COU	Critical Ops Unit	HQ AMS	HQ Army Medical Services	NCID	National Centre for Infectious Diseases	VUCA-D	Volatile, Uncertain, Complex, Ambiguous and Disruptive
COVID-19	Coronavirus Disease-2019	HQ MES	HQ Maintenance and Engineering Support	NDP	National Day Parade	WoG	Whole-of-Government
CRF	Community Recovery Facility	HRP	Home Recovery Programme	NGO	Non-Governmental Organisation	WoN	Whole-of-Nation
CSM	Company Sergeant Major	HRTG	Home Recovery Task Group	NS FIT	NS Fitness Improvement Training		
				OC	Officer Commanding		



ACKNOWLEDGEMENTS

ADVISOR

MG Neo Chin Wee David

CHAIRMAN

BG Chua Jin Kiat

VICE-CHAIRMAN

COL Tan Eng Han Fredie

SECRETARIAT AND EDITORIAL TEAM

LTC Jason Nam Chee Wei

Mr Li Hansen

Ms Loh Ying Bei

CONTRIBUTIONS BY

Air Force Information Centre

Army Information Centre

MINDEF Communications Organisation

Navy Information Centre

POINTER Editorial Team

SAF Information Group

So! Drama Entertainment

DESIGN AND ILLUSTRATION

Redbean De Pte Ltd

PRODUCTION

Oxford Graphic Printers Pte Ltd

EDITED BY

Ms Chua Siew San

Ms Judith d'Silva

WRITING GROUP CHAIRMAN

COL Wong Shi Ming

WRITERS (CHAPTERS 1 TO 6)

LTC Mok Wei Sheng Jerik (Lead)

SLTC Koo Kai Siong

LTC Katrina Pang Ping Ping

MAJ Geeva Gopalkrishnan

MAJ Kenn Yap Zhe Liang

MAJ Tan Xavier

MAJ Tee Chze Hao

MAJ Thia Shan Zhi

CPT Lee Whee Sian Dylan

WRITERS (CHAPTERS 7 TO 10)

COL Edwin Chua Yu En (Lead)

LTC Chua Sheng Hao

LTC Chua Xianyi

LTC Ho Chieh Shiung Wayne

MAJ Foo Ren Yu Graci

MAJ Joseph Lee Chun Meng

MAJ Koh Zhan Wei Aaron

MAJ Tay Jia Xi

MAJ Than Thu Han

The Singapore Armed Forces
would like to thank all our external partners
whose contributions have helped
to make this monograph possible.

PHOTOGRAPHS COURTESY OF

LTC (RET) Chua Moh Tean Alex

Ministry of Defence

Ministry of Health

Ministry of Communications and Information

National Day Parade 2020 Media Team

National Day Parade 2021 Media Team



As our founding Prime Minister Lee Kuan Yew said:

“ Without a strong SAF, there is no economic future, there is no security. The SAF gives strength to Singapore. It protects our Singaporean way of life, in peace and in crisis. It is the defender of our sovereignty and independence. And all of us, every serviceman and every servicewoman, have an important role to play. ”

Lieutenant-General Melvyn Ong Su Kiat, Chief of Defence Force.

