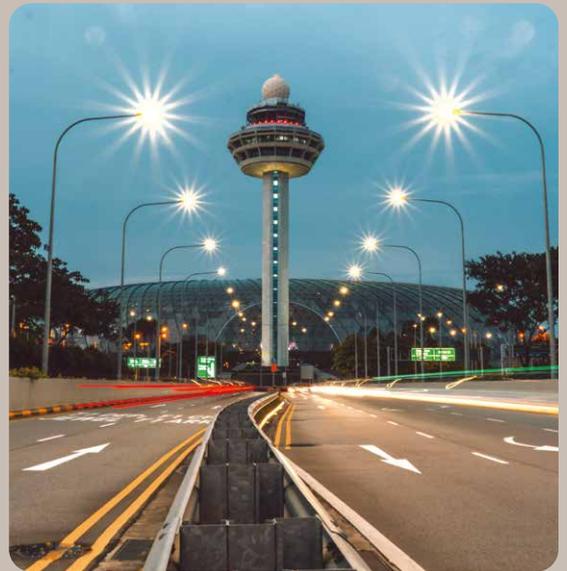
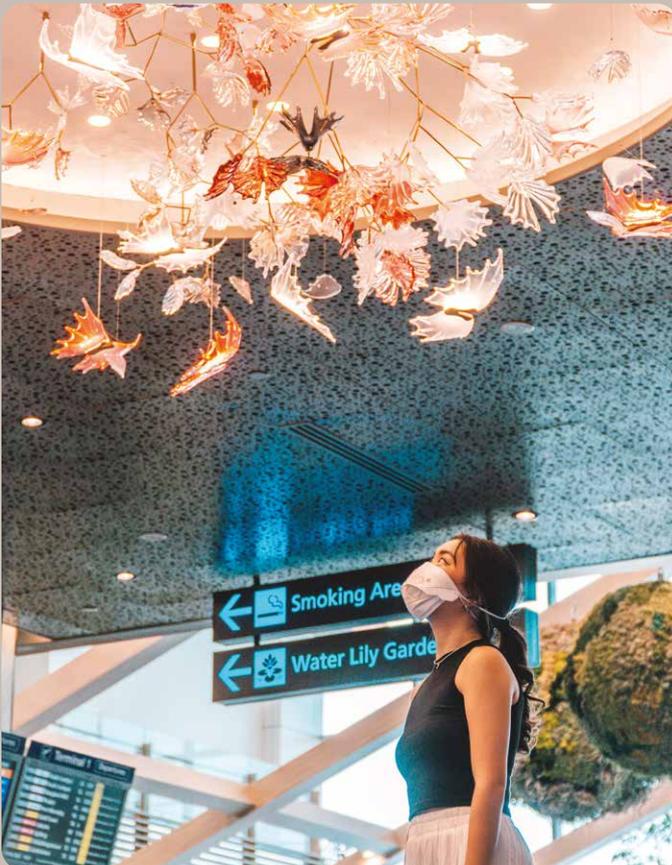
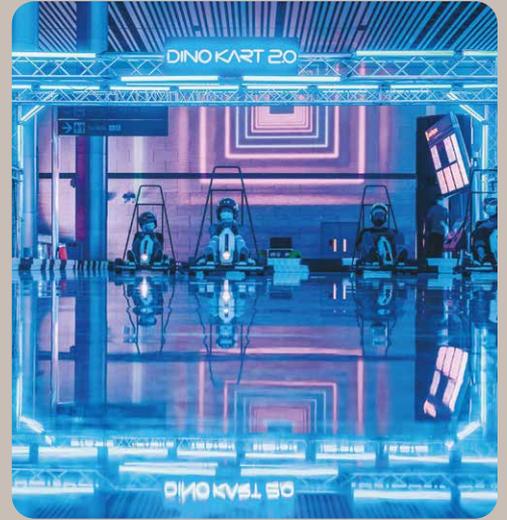


# BUSINESS AND OPERATIONS REVIEW





# AIR TRAFFIC STATISTICS

## PASSENGER MOVEMENTS

5.2M



IN MILLIONS

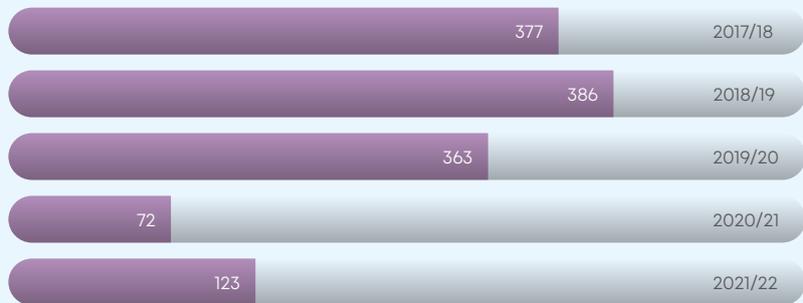


## COMMERCIAL AIRCRAFT MOVEMENTS

122,786



IN THOUSANDS



## AIRFREIGHT THROUGHPUT (TONNES OF AIRFREIGHT)

1.98M



IN MILLIONS



# REBUILDING SINGAPORE'S CONNECTIVITY TO THE WORLD

In financial year 2021/22, Changi Airport saw some recovery of passenger traffic, buoyed by the reopening of international borders in many parts of the world and the launch of Vaccinated Travel Lanes (VTLs) by the Singapore government from September 2021. The year ended with 5.2 million passengers served at Changi, more than four times the traffic of the previous year. Aircraft movements grew 71% year-on-year and airfreight throughput recovered to pre-Covid levels.

In March 2022, Changi Airport handled 1.14 million passenger movements, crossing the one-million mark for the first time since March 2020. However, the lasting impact of Covid-19 continued to plague full travel recovery, with the number of passengers for the month being just one-fifth of pre-pandemic days in March 2019.

## Maintaining air travel despite Covid-19 occurrence in the airport

In May 2021, following the emergence of the more virulent

Delta variant of the Covid-19 virus and the subsequent detection of positive cases in the airport community, CAG temporarily restricted public access to its passenger terminal buildings and closed Jewel Changi Airport (Jewel) to safeguard public health.

The unprecedented move allowed time for all airport workers to undergo mandatory Covid-19 tests in a special testing operation to quickly detect, isolate and treat any potential Covid-19 cases in the airport community, and to deep-clean Changi Airport's terminals and Jewel for additional safety. It also gave time for airport workers to be briefed and trained on the new safety requirements and protocols, and for such new measures, including a new zonal concept of operations, to be rolled out smoothly. During this period, Changi Airport remained open for air travel to and from Singapore and continued to serve transfer and transit passengers in a safe manner with dedicated Transit Holding Areas.

## Supporting the reopening of Singapore through VTLs

With new safety protocols in place and no new positive cases detected among airport workers, Jewel reopened its doors to the public in June 2021 after more than a month of closure. Terminal 1 (T1) and Terminal 3 (T3) were also reopened to the public on 1 September 2021 with additional safeguards to protect travellers, airport workers and visitors. On 8 September 2021, Singapore launched its first VTLs with Brunei and Germany, allowing fully vaccinated travellers on designated flights from both destinations to enter Singapore without the need to quarantine. The promise of quarantine-free travel attracted more traffic to Changi Airport as airlines reinstated flights to and from Singapore.

To support the Singapore government in its efforts to reopen borders in a safe manner, CAG conducted a series of briefings to the travel trade overseas and in Singapore, including travel agents and tour operators, to update them of the latest entry requirements under VTL arrangements. These sessions provided important and up-to-date information on the on-arrival process and experience that travellers could look forward to at Changi Airport.

With the progressive reopening of borders through VTLs, CAG launched a tripartite campaign with Singapore Airlines and the Singapore Tourism Board (STB) from October 2021, titled 'Welcome Back to Singapore', to spur travel to Singapore. The campaign video garnered over 1.3 million views in the first month of its release.



>> The return of Gulf Air in April 2021 created a new city link to Bahrain and enhanced Changi's connectivity with the Middle East.

# REBUILDING SINGAPORE'S CONNECTIVITY TO THE WORLD

## Welcoming new airlines and city links

Throughout the year, CAG worked closely with airlines to restore Changi's connectivity and rebuild its air hub status. Amid the challenge of the ongoing pandemic, Changi Airport welcomed four new passenger airlines, namely, Gulf Air in April 2021, STARLUX and ZIPAIR in September 2021, and HK Express in February 2022. The return of Gulf Air, the flag carrier of the Kingdom of Bahrain, added a new city link and bolstered Changi's connectivity with the Middle East. Similarly, the resumption of the Singapore-Vancouver route by Singapore Airlines reinstated Changi's direct connectivity to Canada after a 12-year hiatus, and put Changi's connectivity to North America in a stronger position than it was before the pandemic.

In December 2021, Air Premia, a new start-up hybrid service carrier from South Korea, also launched a once-weekly Seoul Incheon-Singapore service with Passenger Aircraft for Cargo Conveyance only (PACC) operations, with Singapore being its first international destination. The airline had since scaled up to thrice-weekly services, with plans to convert its PACC operations to passenger service.

By March 2022, Changi had restored its connectivity to over 120 city links, served by more than 80 airlines. This was supported by the VTL arrangements which had been extended to over 30 countries, including Changi's key passenger markets, such as Australia, India, Indonesia and Malaysia. To celebrate the launch of the respective VTLs, CAG organised a series of 'Welcome Back' events



>> The Changi air cargo hub continued to play its part to distribute Covid-19 vaccines to Singapore and the region.

for crew and gave out souvenirs to passengers upon arrival.

## Growing Changi's cargo network

Air cargo continued to be a bright spot as Changi Airport remained steadfast in its mission to facilitate global trade and support the flow of essential goods, including medical supplies, into Singapore and onwards to the surrounding region.

CAG continued to work closely with airline partners to expand their freighter operations and extend passenger freighter flights. As of March 2022, cargo flight movement, including PACC flights, had more than doubled compared to the same month in 2019. As cross-border e-commerce continued to accelerate, CAG facilitated the network expansion of global express integrators, namely DHL Express and FedEx Express, to meet the demand for quick and reliable cargo shipments. In June 2021, Changi Airport welcomed a new freighter operator, Tasman

Cargo Airlines from Australia. Tasman Cargo Airlines' cargo capacity was chartered by DHL Express to cater to the rise in e-commerce cargo flows between Europe and Southwest Pacific. It also supplemented DHL's intercontinental network expansion at the Singapore hub with other freighter operators, such as AeroLogic and Kalitta Air.

During the year, CAG also retained passenger airlines' mindshare of Changi Airport by facilitating PACC flights, such as Ethiopian Airlines, Fiji Airways, Garuda, Hong Kong Airlines, Saudia Cargo and SriLankan Airlines. This boosted Changi's cargo capacity and enhanced Singapore's position as an important logistics hub.

## Developing top-class cold chain capabilities

CAG continued to enhance Changi air cargo hub's cold chain handling capabilities through community collaboration. With the rise in global vaccination rates and demand for Covid-19 boosters,

the Changi air cargo hub, being the first and largest IATA CEIV Pharma<sup>1</sup> certified community in the Asia-Pacific, kept to its role of protecting public health with the safe, reliable and effective delivery of Covid-19 vaccines into Singapore, and beyond to Southeast Asia and Southwest Pacific.

Changi Airport also formed the first IATA CEIV Fresh<sup>2</sup> certified community in Southeast Asia with Singapore Airlines, SATS and dnata Singapore. It was a testament that the Changi air cargo hub community had met the highest industry standards on handling perishables through extensive airport cold chain infrastructure and trained specialists. With this achievement, Changi, being strategically located at the crossroads of major perishables production and consumption markets, was well-poised to facilitate perishables trade flows to and from Asia-Pacific.

In 2021/22, Changi Airport won three international awards in the air cargo category: Highly Commended Cargo Hub of the Year at the Air Cargo News Awards 2021, Asia Pacific Airport of the Year 2021 at the 8th edition of Payload Asia Awards, and Best Airport in Asia (over 1 million tonnes) at the 2021 Asian Freight, Logistics and Supply Chain Awards. The accolades were a recognition of Changi's continual commitment to being a leading air cargo hub serving Singapore and the region.

### Continual engagement with trade partners

CAG continued to engage its global network of travel agents through Changi Travel Circle (CTC), a digital business-to-business platform, to maintain top-of-mind awareness for Singapore, Changi Airport and Jewel. By March 2022, CTC had more than 1,500 overseas travel agents across 44 countries

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**By March 2022, Changi had restored its connectivity to over 120 city links, served by more than 80 airlines.**

and 45 Singapore destination management companies as programme members and partners, respectively. Besides updating the community on the latest travel requirements into Singapore, CTC showcased novel and unique Singapore tour products and offerings over the course of the pandemic.

CAG also worked with various stakeholders, including STB, to strengthen Singapore's appeal and domestic tourism by raising the awareness and attractiveness of Changi Precinct – a unique district in the eastern end of Singapore,

which includes Changi Airport, Jewel and its surrounding areas such as Bedok, Tampines and Pulau Ubin. Through new tourism products, such as forest bathing in Jewel's Shiseido Forest Valley and cycling tours from East Coast Park, CAG injected vibrancy to the Changi Precinct and attracted more footfall to its terminals and Jewel.

### Further easing of air travel restrictions to drive recovery

On 24 March 2022, the Singapore government took a decisive step to further ease Covid-19 travel restrictions and fully reopen its borders to the world. The new Vaccinated Travel Framework (VTF), effective 1 April 2022, replaced all existing VTL and unilateral opening arrangements and allowed fully vaccinated travellers to enter Singapore quarantine-free. Covid-19 testing requirements for fully vaccinated travellers were streamlined with the removal of on-arrival tests. On 26 April 2022, the need for pre-departure tests prior to entering Singapore was also lifted. The removal of impediments to travel while still safeguarding public health was a major leap forward. It boded well for traffic recovery as CAG stepped up to reclaim Changi Airport's status as an international aviation hub.



>> New tourism and wellness products, such as forest bathing in Jewel, enriched the appeal of the Changi Precinct for domestic and international visitors.

<sup>1</sup> CEIV Pharma, or the Center of Excellence for Independent Validators in Pharmaceutical Logistics.

<sup>2</sup> CEIV Fresh, or the Center of Excellence for Independent Validators in Perishable Logistics.

# DELIVERING THE PROMISE OF SERVICE EXCELLENCE

CAG remained committed to delivering the best airport experience at Changi despite challenges posed by the Covid-19 situation. On top of maintaining a clean and safe airport environment, the Group was agile in responding to changes in air travel processes and safety measures arising from the global pandemic. All these were done to ensure that airport visitors and passengers continued to be served in a safe, efficient, and comfortable manner.

Changi Airport was named the World's Best Airport in the 10 to 15 million passengers category in the Airports Council International's (ACI) Airport Service Quality surveys. It also won the World's Best Airport Staff and Best Airport Staff in Asia awards, a testament to its dedication to service excellence despite a difficult operating environment. Changi successfully renewed its accreditation under ACI's Airport Health Accreditation Programme, demonstrating that the health measures put in place at the airport were aligned with industry best practices.

## Acting swiftly to safeguard public health

Since the start of the Covid-19 pandemic, CAG had implemented new safety measures and intensified the cleaning of airport terminals to protect the health of passengers, airport users and workers. Working alongside the Singapore government, a risk-based approach was adopted – arriving passengers were segregated and handled according to the government's prevailing risk assessment of the countries where they came from. Risk-based measures were similarly put in place to protect airport workers.



>> CAG acted swiftly with a new zonal concept in May 2021 to reduce the risk of cross-infection between airport users and workers.

This included the vaccination and regular testing of frontline workers, as well as the use of the appropriate level of personal protective equipment (PPE).

To safeguard public health, CAG temporarily restricted access to the passenger terminal buildings and closed Jewel Changi Airport (Jewel) to the public in May 2021, when the more virulent Delta variant breached the defence of stringent safety protocols set in place by CAG to mitigate the risk of infection. With a number of Covid-positive cases among airport workers, the unprecedented entry restrictions allowed time for all airport workers to undergo mandatory Covid-19 tests in a special operation so that any potential Covid-19 cases could be quickly detected, traced, isolated and treated. The closure also enabled Changi Airport's terminals and Jewel to be deep-cleaned for enhanced safety.

## Preserving a safe travel environment for passengers and airport workers

During this period, Changi Airport remained open for flight operations to keep Singapore connected to the world.

To ensure a safe environment for all airport users and workers, CAG tightened its airport-wide infection prevention and control strategy in consultation with the Ministry of Health (MOH), the National Centre for Infectious Diseases, and the Civil Aviation Authority of Singapore. A new zonal concept was introduced to reduce the risk of virus transmission. The airport's terminals were segregated into three distinct zones.

Airport workers in Zone 1 (the highest-risk zone), which included the terminal piers, arrival immigration hall, and baggage

claim hall, were protected in the highest-level PPE and segregated from other workers throughout the duration of their shift. This group of workers had their own dining areas with individual seating, rest areas, reserved toilets, and dedicated PPE donning and doffing stations. Similarly, those working in Zone 2, comprising the departure immigration area and the central transit area, and Zone 3, comprising the public areas, where the risks of infection from arriving passengers were respectively lower, had to comply with the applicable safety requirements. Airport workers were given additional training on the proper use of PPE with regular audits and spot checks to ensure strict compliance. A new movement record system was also rolled out to maintain the integrity of zonal segregation.

To bring the risk of virus transmission to the lowest, the transit areas in Terminal 1 (T1) and Terminal 3 (T3) were further segregated with dedicated thoroughfares and facilities for arriving and departing passengers as well as airport workers to reduce cross-contact. As an added precautionary measure, passengers from very high-risk countries were escorted to the remote gates in Terminal 2 for immigration clearance and then transported by bus out of Changi Airport directly to their quarantine facility, without going through the operational terminals. Efforts were made to ensure that the passenger flow remained smooth and seamless, and the airport experience was not compromised even as safety measures were put in place.

As vaccination provided the individual with protection and lowered the risk of transmission, only fully vaccinated staff were rostered for duty in Zone 1. CAG also stepped up its testing regime for airport workers, with those working in higher-risk roles taking an additional Antigen Rapid Test

(ART) between their seven-day rostered routine tests. A new staff testing centre was set up within six days to conduct additional ART for the sizable group of airport workers. A daily rapid non-invasive test at the end of the shift was also given to Zone 1 workers for added peace of mind. CAG recognised the significant demands which the new zoning concept placed on the workers, especially those assigned to Zone 1, and worked closely with its airport partners and agencies to ensure that the workers' welfare was well taken care of.

With enhanced safety measures implemented to protect airport workers and visitors, Jewel reopened its doors to the public in June 2021. Changi's T1 and T3 followed in September 2021 with additional safeguards in place. For example, only professional meet-and-greet service personnel were allowed access into the arrival halls to serve arriving passengers, and a new dedicated dining area was also set up at T3 Basement 2 for airport workers to reduce their interaction with the public. The

air-conditioning and mechanical ventilation systems within the airport terminals were also upgraded for cleaner air quality.

### Facilitating the smooth launch of Vaccinated Travel Lanes

In September 2021, under the new Vaccinated Travel Lane (VTL) scheme, fully vaccinated travellers from a list of pre-approved countries could enter Singapore on VTL flights without the need for quarantine, greatly alleviating the cost and hassle of air travel. By March 2022, over 30 countries were approved under the VTL scheme, marking a step towards traffic restoration at Changi.

CAG fully supported the VTL scheme which allowed travel to resume in a calibrated manner. The Changi Testing Facility, managed by CAG, played a pivotal role as arriving passengers had to undergo on-arrival tests (OAT) in Changi. In anticipation of traffic recovery, the testing facility at T3 was expanded to increase its passenger handling capacity. CAG also onboarded new laboratory partners for the PCR



>> In-terminal safety protocols were gradually lifted in March 2022 to allow passengers and families to meet in the arrival hall.

# DELIVERING THE PROMISE OF SERVICE EXCELLENCE



>> CAG leveraged innovation, such as a new virtual Changi Experience Ambassador service, to assist passengers more effectively.

testing to augment processing capabilities and support the growing number of arriving travellers. These enhancements, coupled with CAG's Safe Travel Concierge, a web portal which allowed travellers to easily retrieve information on entry requirements and pre-book their OAT for a faster turnaround time, boosted Changi's readiness to manage travel recovery in the months to come.

At Changi, transfer and transit traffic continued to be a strategic segment vital for the air hub's growth. To ensure this group of passengers were well-served, CAG continued to operate the Transit Holding Areas (THA) that it had set up since June 2020. It regularly reviewed its approach in handling these passengers with regulatory and health agencies, in accordance with the evolving global Covid-19 situation and MOH's risk assessment. In November 2021, a breakthrough was achieved. Except for a small number of travellers from countries that were classified as higher risk, the THA handling was removed for all other transfer and transit passengers, so they

could once again enjoy the full suite of transit facilities. The THA was resized to free up gate capacity and ease manpower challenges on ground. Nevertheless, when CAG was tasked to reinstate the THA temporarily in December 2021 due to the surge in cases from the Omicron variant from several key European markets, CAG was able to respond quickly and restore the THA within a few days.

Having achieved success on the risk-based segregation approach in transit, a similar concept was rolled out to the arrival halls in October 2021, allowing meet-and-greet activities to resume at dedicated meeting points. In March 2022, in the first sign of return to normalcy for air travel, restrictions to the arrival halls were completely lifted, permitting arriving passengers to be welcomed by their family and friends freely.

With sufficient safeguards in place and in tandem with Singapore's move towards an endemic situation, staff zonal segregation was phased out gradually to ease manpower constraints.

The flexibility for staff movement and deployment allowed Changi to better serve its customers, especially with the increase in traffic.

On 24 March 2022, the Singapore government announced a further easing of Covid-19 travel restrictions to fully reopen its borders. A new Vaccinated Travel Framework effective from 1 April 2022 replaced all existing VTL and unilateral opening arrangements, allowing fully vaccinated travellers to enter Singapore quarantine-free. Covid-19 testing requirements for fully vaccinated travellers were also simplified with the removal of OAT. The need for pre-departure test prior to entry into Singapore was further lifted from 26 April 2022. CAG continued to adjust its airport protocols with agility to support travel recovery.

## Strengthening the Changi Experience

As travel began to recover, local residents remained the bulk of Changi Airport's visitors. CAG continued to strengthen the special bond between Changi and local residents with unique events to attract footfall. To celebrate year-end festivities, CAG hosted the Changi Festive Village for the second time and powered it up with more fun activities and shopping promotions, including a brand partnership with Tsum Tsum at T3. At Terminal 4 (T4), the Dino Carnival and Dino Bounce returned by popular demand, with more than 35 carnival game and food stalls, as well as fossil digging and ice-fishing activities. T4 also hosted Singapore's only indoor go-kart circuit within its departure hall, which proved to be a hit for over 13,000 thrill-seekers. For the first

time, T4 opened its transit area for 2,000 campers to stay overnight in glamping tents, with game booths and movie screening for a night of adventure at the airport.

Over at Changi Jurassic Mile, a 3.5-kilometre-long cycling and jogging path linking Changi Airport and East Coast Park, CAG collaborated with Sundown to organise the first virtual marathon at the airport. Visitors were awed by the first Changi Park Connector light-up featuring more than 10,000 LED tulips and sunflowers, as well as the new Changi Jurassic Arc, an outdoor garden with a 4-metre-tall Tyrannosaurus rex topiary and a 5-metre-tall animatronic Spinosaurus.

CAG, well-known for its generous usage of plants in its terminals, continued to open its nursery for public tours and plant sales. It tapped new avenues for its plant sales, such as the Changi GIFT shop.

### Appreciating the ONE Changi airport community

CAG continued to recognise the contributions of the ONE Changi community, a key pillar of strength for the airport. More than 400 airport workers attended the annual ONE Changi Appreciation event held in January 2022 to celebrate and honour the achievements of the airport community. Thirty-

one awards were presented to airport partners and workers to thank them for partnering CAG in ensuring smooth and seamless operations at the airport during these challenging times.

Airport workers, especially those working in Zone 1, also received donations in the form of food, gift packs, and thank you cards, in appreciation of their hard work and sacrifice during the pandemic to keep Singapore's borders open safely. These donations were from airport partners, schools, private companies, government agencies as well as CAG. A total of 25 giveaways with over 61,000 items were organised during the year.

### Developing new service initiatives and skillsets

In September 2021, in a leap towards service innovation, CAG launched the virtual Changi Experience Ambassador (CEA) programme at key information counters. The new digital platform allowed the customer service team to serve passengers remotely while maintaining the human touch, especially for passengers with more complex issues to resolve. CEAs were trained in digital competencies to operate with this novel, integrated service approach.

The ONE Changi Learning Festival was also held virtually in March 2022 to promote learning and

foster greater collaboration between airport partners. Through webinars, panel discussions and virtual visits, participants gained new skills under three tenets – service in the new normal, understanding and appreciating disabled people needing assistance, and mental wellness.

To be a more inclusive airport, CAG launched three new initiatives under its Care@Changi programme to better support passengers with special needs, especially those with invisible disabilities. These included training over 300 frontline staff as Changi Care Ambassadors, and to identify such passengers more effectively by the special lanyards they wear. CAG partnered Rainbow Centre Training and Consultancy to develop the Changi Airport Social Story, a step-by-step guide to help such passengers through the airport processes.

In August 2021, CAG signed a memorandum of understanding with Changi General Hospital to focus on the well-being of travellers. The aim was to promote traveller wellness, introduce more comprehensive occupational health programmes for the airport community, exchange best practices, conduct research and innovate on emerging areas of concern to create a vibrant and healthy airport ecosystem.



>> For the second year running, CAG hosted the Changi Festive Village to celebrate year-end festivities with airport visitors.

# STAYING OPERATIONALLY READY

During the year, Changi Airport stayed open for flight operations to preserve Singapore's connectivity to the world and to keep the country's economy going, even as a slew of new health protocols were rolled out to combat the more transmissible Covid-19 variants. Besides strengthening Covid-19 protection measures in the airport's terminals, the safety of passengers on every flight handled continued to be of utmost importance. CAG enhanced its flight operations and airside functions with more efficient and innovative technologies, as it prepared for travel recovery.

## Strengthening emergency preparedness

Emergency preparedness remained a key priority for CAG. The Airport Emergency Service (AES) team partnered with key stakeholders to conduct two crash exercises during the year – Exercise Bear at Seletar Airport in

August 2021 and Exercise Bobcat at Changi Airport in October 2021. New technologies, such as firefighting robots, body-worn cameras, and autonomous stretcher to transport casualties, were trialled as part of the effort to future-proof Aircraft Rescue and Firefighting (ARFF) capabilities and airport operations. These exercises, organised with safe management measures in place, validated the ARFF capabilities of the AES team and ensured that the two airports stayed crisis ready for the safety of all airport users.

CAG also commissioned new aircraft rescue and firefighting water tenders during the year to bolster its firefighting capabilities. The new water tenders were equipped with larger foam and water tank capacities and more advanced firefighting features. To shorten response time, the runway emergency access roads at Changi and Seletar airports

were also operationalised in June 2021, allowing rescue vehicles to respond more quickly to aircraft incidents on and beyond the runway.

Emergency preparedness was strengthened with strategic partnerships. As part of the memorandum of understanding signed with Changi General Hospital (CGH) in August 2021, CAG and CGH shared best practices in crisis management workflow and tightened the interface between airport and hospital to better serve casualties from an aircraft accident.

To overcome network coverage challenges at sea, CAG also worked with Starhub, a network service provider, to conduct the first-ever sea trial using 5G network. With clearer and better-quality live feeds achieved from the sea to the AES command post on land in real time, decision-making and rescue efforts would now be more efficient.

With fewer flights during the year, firefighters from the AES team performed additional airside duties, such as wildlife dispersal and counter-drone operations, as part of the company's in-sourcing efforts to better manage cost and manpower.

## Engendering a culture of safety

A safe airport environment is crucial to creating a positive travel experience for passengers and to enable staff to return home safely every day. For maintaining its safety record, Changi Airport achieved a deficiency-free rating by the International Federation of Air Line Pilots' Association



>> The Annual Airport Safety Awards recognised individuals and teams who embodied the culture of safety in their work.

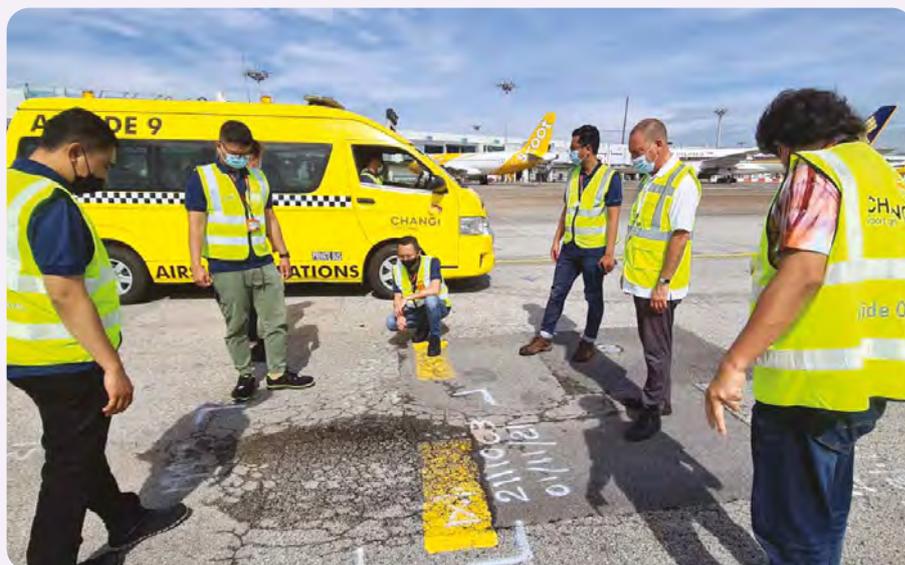
(IFALPA) for the 41<sup>st</sup> consecutive year since it opened in 1981.

CAG persevered in its efforts to build a culture of safety within the airport community. The Airport Safety Awards programme, in its fifth year, saw close to 400 staff being recognised for their outstanding acts of safety and safety-related innovation. The high participation and strong support from key airport partners were encouraging and signified a unanimous spirit in maintaining a culture of safety at Changi.

The Service Workforce Empowerment & Experience Transformation (SWEET) mobile app, which enables every staff in the airport community to report potential hazards, continued to be widely used. More than 1,000 cases were reported, reflecting the airport community's strong safety culture, and allowing potential hazards to be swiftly tackled through collective efforts.

To provide users with easy access to up-to-date safety manuals, CAG also modernised its library of safety-related publications with the launch of a mobile app. This greatly improved efficiency as staff could retrieve digital versions of the safety documents remotely and no longer needed to carry physical versions to work sites.

During the year, CAG worked closely with the Civil Aviation Authority of Singapore (CAAS) to ensure compliance with the regulator's Code of Practice for Terminal Safety. It successfully completed an audit in October 2021 to ascertain that proper safeguard was in place to protect persons and property within the airport terminals. It also successfully completed a biannual security audit held by the Airport Police Division between October and November 2021 with no



>> To be future ready, airside professionals were groomed to handle more complex airside operations in a special training programme.

findings, which attested that the airport's security protocols complied with international and local security regulations.

CAG also maintained its aerodrome certificate for Changi and Seletar Airports when it successfully completed CAAS' safety surveillance audits in March and November 2021, respectively, with no significant safety issues reported. Although many operational changes had to be undertaken in response to the pandemic, safety remained a top priority and CAG continued to meet all the requirements. CAG's focus on safety was also validated, when CAAS noted the progress made by CAG in safety management during the safety management system assessment conducted by CAAS in July 2021.

**Ensuring runway safety with new global reporting system**

To ensure the safety of aircraft on the runway, CAG implemented the latest global reporting format developed by the International Civil Aviation Organization (ICAO) for assessing and reporting runway surface conditions. The new format aimed to mitigate the risk

of runway excursions by providing flight crew with an improved assessment of runway for take-off and landing.

To meet the requirements, CAG developed a new runway condition reporting system which automatically assesses and relays any changes in runway surface characteristics to air traffic controllers and pilots in real time. Data was collected by rain gauges and analysed by the system, removing the need for manual inspections. Additionally, at Seletar Airport, solar panels were installed to provide a more cost-effective and greener solution for the new system implementation. Following rigorous trials and tests for accuracy, the new system at both airports went live by end 2021, in compliance with ICAO's requirements.

**Transforming airside operations with new solutions**

The use of innovative technologies, including automation and robotics, to transform airside operations and optimise manpower deployment continued to be top priorities at Changi Airport. In August 2021, following the success of trials

# STAYING OPERATIONALLY READY



**CAG enhanced its flight operations and airside functions with more efficient and innovative technologies, as it prepared for travel recovery.**

using autonomous guided vehicle to haul baggage, the airside team worked with ground handlers and airlines to redesign the concept of operations for the autonomous

baggage tractors to serve live flights. By December 2021, a fleet of self-driven tractors were supporting Singapore Airlines' year-end peak period operations.

Another area of innovation was the trial of video analytics at the apron to improve operational efficiency. With real-time tracking capabilities backed by video analytics, gate planners would have full visibility of aircraft turnaround activities and a more accurate prediction of delays. This, in turn, would allow them to change gates to meet dynamic operational demand and achieve better on-time performance.

As Changi Airport moves towards a three-runway and multi-apron operation, there is a need to ensure that airport professionals are trained to work in an increasingly complex airside environment. Attracting and retaining airside talent is paramount. CAG thus embarked

on a transformation programme to redesign airside job roles and groom airside professionals with the full range of capabilities required to manage future operations confidently and efficiently. The first batch of airside professionals completed their six-month training and were deployed in April 2022.

## **A data-driven approach to manage assets**

Asset management and inspection is typically manpower heavy. To streamline processes and improve productivity, CAG's Engineering and Development (E&D) team enhanced its digital asset management and inspection platform to automate process flow, and move towards a new targeted asset maintenance regime driven by data.

Beyond the mere digitisation of maintenance checklist, the new approach leveraged digital tracking to replace on-site verification of works performed by contractors, automated abnormality detection, and smoothed process flow through system-activated alerts for exceptional handling. With its nimble, no-code capability, users could also easily set up new customisable maintenance checklists on the platform and instantly linked it to automatic audit checks and abnormality detection. This greatly improved cost and manpower efficiencies in the otherwise laborious task of maintenance.

In 2021, the platform was scaled up to meet the needs of other business units which could conveniently tap on the data



>> CAG explored the use of technology with Changi General Hospital to better manage casualties from an aircraft accident.



>> New solutions, such as firefighting robots, were trialled at Exercise Bobcat to improve firefighting capabilities.

collected from the platform. The enterprise-wide version hosted 23 web applications and more than 1,000 users across the organisation, five-fold that of its initial launch.

### Deploying sustainable solutions

To support organisational-wide efforts in sustainable airport operations, CAG focused its efforts to use cleaner energy and reducing electricity consumption. It embarked on a project to upgrade its Terminal 2 chiller plants and air handling stations/units, which were nearing their end-of-life cycles, to best-in-class energy-efficient models. It tapped on smart technologies, such as fault detection diagnostics and condition monitoring, for predictive maintenance and more reliable facilities management. The replacement project was awarded a grant by the National Environment Agency for the use of green refrigerant with very low global warming potential value. Upon completion in 2023, the

project would translate to more than S\$3 million worth of energy cost savings for the company and reduce carbon emission footprint of over 6,000 tonnes of carbon dioxide equivalent per year for Changi Airport.

### Building resilience to climate change

With climate change giving rise to more frequent and intense wet weather, CAG installed sensors in its drains to track water build-up rate in real time to mitigate the risk of flash floods within the airfield and its surroundings. It drew on the concept of 'Google maps' to develop an interface that allowed the E&D team to identify at a glance which drains required immediate attention. The new approach, which categorised water levels by colours, monitored abnormalities more efficiently and allowed resources to be deployed on-demand rather than by schedule. Plans are underway to integrate this system with the existing building management system and fault management centre,

synergising operations between the drainage network and the pumped drainage systems serving various subterranean facilities.

### Leveraging technology for a smooth airport experience

CAG strives to provide an inclusive and seamless airport experience for every passenger and regularly reviews areas of improvement, including passenger mobility. Noticing a wide gap between its remote bus gate building and buses parked at the apron kerbside to pick up passengers, which might pose safety concerns and a challenge for passengers, especially those with less mobility and with heavy bags, a new seamless boarding feature was installed at the new C21 and D33 remote bus gates for added passenger safety and comfort. The mechanised ramp, which levelled the ground for boarding at remote bus gates, would greatly aid such passengers, as they would no longer need to step up and down during boarding.

# BUILDING THE FUTURE OF CHANGI AIRPORT

CAG conducted a thorough review of the Terminal 5 (T5) functional plans to make it modular, sustainable and pandemic-ready. On the construction front, various project teams spared no effort to deliver their work on time despite the challenges faced during the pandemic.

## Building a three-runway system

Following the operationalisation of Runway 3 for civil use in December 2020, Runway 2 was closed for further infrastructure upgrades. The works included a network of taxiways to connect Runways 2 and 3, an upgrade of the existing drainage system to cope with climate change, a new set of navigational aids, as well as ancillary buildings to support the specialised systems. The three-runway system is expected to be commissioned in the mid-2020s.

## Enhancing connectivity for Changi East

CAG also continued with the construction of underground tunnels at Changi East. One of them

is the Intra-Airside Road Connection (ARC), which provides a dedicated roadway for airside vehicles to traverse the airfield without interfering with aircraft movement on the ground. It is a 2.8-kilometre-long dual carriageway with two lanes each and comprises a series of depressed roads and underground road tunnels that connect from the future T5 terminal buildings to the Changi East Industrial Zone. The first 1.1-kilometre stretch of ARC is slated to be completed in the third quarter of 2022.

Another major construction is the Inter-Terminal Bored Tunnels (ITBT) between Terminal 2 (T2) and T5. About 1.7 kilometres in length, the ITBT consists of three bored tunnels which will house the automated people mover and the baggage handling systems, allowing seamless passenger and baggage transfers between T5 and the existing terminals. The Tunnel Boring Machines (TBMs) were manufactured overseas and delivered to the site progressively in 2021 before being put into operation. The first TBM was

successfully launched and had started its tunneling journey towards T2 in January 2022.

## Recognising Changi East contractors for keeping high safety standards

The past two years had not been easy for Changi East contractors as they braved through material and manpower resource challenges, while adhering to stringent safe management measures amid the pandemic. To inculcate a good safety culture, the Changi East Safety (CES) team launched the inaugural Workplace Safety & Health Recognition Awards to recognise contractors who demonstrated high standards of construction safety in 2021. Good safety practices were also shared by the winning contractors to facilitate mutual learning.

Moving forward, the CES team will work closely with project safety managers and project managers to forge closer collaboration and partnership, making Changi East a sustainable and safe workplace for all.



>> The Changi East team gathered in front of the cutter-wheel which had since begun its tunneling journey.

# GEARING UP FOR TRAVEL RETAIL'S RECOVERY



>> As passenger traffic picked up pace, CAG worked closely with its tenants to extend their operating hours and encouraged those who were closed to restart operations.

The travel retail landscape remained challenging due to the low passenger traffic in the last year, but CAG continued to support its tenants. This included providing elective trainings to upskill frontline staff to help tenants manage their manpower resources. CAG also kept tenants abreast of the latest Covid-19 directives and developments, working closely with them to ensure compliance on the ground.

The steely support was reassuring for tenants and several top brands cemented their partnership with CAG during the depth of the crisis, reflecting their confidence in the Changi air hub. Fresh leases were also inked with key souvenirs concessions, as well as luxury brands such as Gucci, Hugo Boss, Montblanc, Prada, Rimowa and Saint Laurent.

## Dining in a safe environment

Following the detection of the Delta variant and rising concerns

of Covid-19 transmissions at the airport, Changi's passenger terminal buildings were closed to the public from 10 May to 31 August 2021 for the rigorous testing of the entire airport community, so that any potential Covid-19 cases would be swiftly isolated and treated. However, the airport remained open for air travel and CAG worked with food and beverage tenants to ensure that there were sufficient meal options to cater to departing passengers and the airport community.

Measures were also taken to ensure the safety of all airport visitors and workers. Perspex shields were installed on all the dining tables in the staff canteens and Kopitiam in Terminal 3 (T3). Air purifiers with HEPA filters were also placed within the premises.

To prevent inter-mingling among airport workers and the public when the terminal buildings reopened, a new dedicated dining area was set

up next to Kopitiam for airport staff. CAG also worked with the canteen and foodcourt operators to switch to the use of disposable wares in the initial days of reopening to minimise virus transmission through surface contact.

## Capturing the imagination of shoppers

As passenger traffic picked up pace with the launch of Vaccinated Travel Lanes (VTLs) in September 2021, CAG worked closely with its tenants to extend their operating hours and encouraged those who were closed to restart operations. By March 2022, about seven in 10 shops at Terminal 1 (T1) and T3's transit areas were open for travellers.

CAG also ramped up on promotions with brands to rekindle the joy of shopping and dining in the Transit Hall. For example, CAG partnered Lotte and lined up a series of exciting brands at the new pop-up space at T3's transit hall, offering travel exclusive products, some of which were limited editions.

When the terminal buildings reopened in September 2021 following a four-month closure, CAG was quick to welcome visitors back to the airport with a travel-themed exhibition featuring Instagram-worthy backdrops from seven destinations. The airport also rolled out various dining promotions and shopping campaigns such as the 2xGST promotion in November 2021 and January 2022, as well as the 'Tsum into a Roarsome New Year' campaign, to drive sales to support tenants during the festive period.

The revitalisation of the north cluster at T3 Basement 2, which converted two retail units into four

## GEARING UP FOR TRAVEL RETAIL'S RECOVERY

open-concept food retail kiosks, was also completed by December 2022. The refurbishment not only rejuvenated the space, but also greatly improved the visibility of the retail units located along the secondary thoroughfare, thereby enhancing the marketability of the retail units and improving long-term rental yield.

Shoppers also had more food and beverage options. Of the four new food kiosk tenants, three were new to Changi – 365 Juices Bar, RotiBoy and TheJellyHearts. The other three existing kiosk tenants Jollibean, KOI and Hokkaido Baked Cheese Tart also underwent minor refurbishment works to enhance the ambience at the expanded common area. By January 2022, the number of visitors at Changi's public areas had increased by over 50% compared to September 2021.

With travel slowly recovering, Singapore residents were still exploring local options to spend their weekends and holidays. CAG continued to engage locals on the hunt for things to do at home with attractive curated events for their enjoyment. In March 2022, it launched 'Changi's Sweetest Treats', a collaboration with the well-loved lollipop brand Chupa Chups, to delight families with large, colourful photo spots, including the largest Chupa Chups lollipop display in Singapore, as well as workshops to keep the young ones engaged.

### Growing new sales channels

Even as CAG welcomed more passengers, it continued to explore opportunities to grow its non-traveller market, so as to provide tenants with an additional channel of revenue.



>> CAG secured Porsche's partnership to offer an all-electric Porsche Taycan as the Grand Prize for the 'Win With Changi' campaign.

In the previous year, CAG's e-commerce portal iShopChangi.com (ISC) had expanded its business model to one that actively targeted the non-travellers. Since then, it had onboarded various off-airport brands such as Dyson, Glenmorangie, IDS Skincare and Saito to provide local shoppers with an extended range of products and potentially, an opportunity to break into the travel retail market. Local brands including Kinohimitsu were also able to use the portal to showcase their products to the world.

The iSC platform also went through an upgrade which allowed its systems to scale its capabilities on merchant support, hyper-personalisation and content management to serve its customers – both partners and customers. Riding on the momentum of the growing e-commerce trade, iSC worked closely with partners

to offer exclusive products and limited-edition merchandise. These products were a hit among consumers – Diageo's Legends Untold eight-bottle single-malt whisky collection (worth S\$3,900) launched exclusively in Singapore on iSC during the Happy Haul-idays Christmas campaign and was sold out within 24 hours of launch. Other limited-edition specials included first-to-launch SKNNY Coffee from Kinohimitsu and travel-exclusives from Royal Salute and Martell.

The close relationships fostered with new and existing retailers helped maintain competitive pricing across an assortment of bestselling products and allowed consumers to get their favourite wines and spirits at up to 40% discount all year round. iSC has since seen a seven-fold growth in alcohol sales compared to the year before.

iSC went a step further and also rolled out the Seller University, a learning hub that equips new merchants with a full suite of tools and bite-sized tips to help them achieve better sales on the e-commerce platform.

Following 2020's successful launch of the campaign, iShopathon, which saw popular influencers and celebrities host live streaming sessions to promote new products and bestsellers from iSC, the campaign continued into 2021. Participating brands saw up to three-fold increase in sales 24 hours after the live streaming sessions.

With the accelerated expansion into the domestic, non-traveller market since 2020, the iSC team also stepped up on their customer experience strategy to provide customers with an omni-channel beauty experience. It collaborated with Estée Lauder Companies to launch a physical store BEAUTIQUE by iSC in Jewel Changi Airport (Jewel), combining both online and offline shopping experience into one seamless journey. The experience has since won the Omnichannel Strategy of the Year – Singapore in the Retail Asia Awards 2022.

It also secured Jewel's concierge counter as an additional collection point for iSC purchases since April 2021. The extra collection point gave non-travelling shoppers a guaranteed earlier collection timing and removed the need for a minimum spend to shop on iSC.

iSC went on to win the Best Innovation Award – The Disruptor in the SAP Best Run Awards for SEA 2021. The accolade recognises emerging enterprises with a strong culture of innovation and which seek creative solutions to persistent problems during unprecedented times.

On the dining front, CAG's food delivery platform Changi Eats continued to clock record high sales, backed by attractive promotions and specially curated festive sets in partnership with off-airport festive merchants such as Matchaya and The Plattering Co.

### Emerging stronger through innovation

The spirit of innovation remained strong in CAG as it continued exploring ways to enthrall customers with its hallmark Changi Experience.

It launched mobile wallet Changi Pay in October 2021, allowing shoppers and diners to make contactless QR payments at about 260 Changi Airport and Jewel stores, utilise exclusive discount vouchers upon check-out, and seamlessly earn Changi Rewards (CR) and CapitaStar points (for Jewel stores) all at one go with just one scan. Changi Pay can also be used while shopping on iSC.

In November 2021, CAG launched the year-long 'Win With Changi' campaign, a twist to the former 'Be a Changi Millionaire' campaign and which incorporated elements that were more relevant to the retail landscape during the pandemic. It secured Porsche's partnership to offer an all-electric Porsche Taycan as the Grand Prize. Attractive prizes included the weekly top prize of one million CR points and quarterly prizes of 10 million CR points.

With travel curtailed and the airport terminals closed in the year, there were lesser avenues available for CR members to redeem and use their e-vouchers. To maintain its competitiveness as a loyalty programme, CAG introduced the new CR e-voucher flex that is accepted at both Jewel and the airport terminals in July 2021. The CR e-voucher flexi is now widely accepted at more than 80% of shopping and dining outlets in Jewel.



>> iShopChangi opened BEAUTIQUE by iShopChangi in Jewel, combining both online and offline shopping experience into one seamless journey.

# SHINING THROUGH THE DARKEST NIGHTS

With the pandemic into its second year and dampening retail and dining businesses across Singapore, Jewel Changi Airport (Jewel) stayed resilient and continued to secure new tenants and refresh its dining and shopping options for customers. Some of the notable local and international brands that have opened shop in Jewel during the year included Asics, Bath & Bodyworks, BEAUTIQUE by iShopChangi, Converse, NY Verden, Sift & Pick x MARHEN.J, Tai Er and Tsui Wah.

The one-month closure of Jewel from 13 May 2021 and island-wide dining restrictions imposed by the government on 14 June 2021 exacerbated the challenging operating conditions, but Jewel Changi Airport Development (JCAD), of which CAG is a majority shareholder, remained tenacious in supporting its tenants during this difficult period.

To drive footfall and spend at Jewel, JCAD rolled out monthly marketing promotions and

collaborated with banks and payment services to offer enticing deals. It also onboarded its tenants to the e-commerce platforms of CAG and its other shareholder, CapitaLand. These platforms, which included Changi Eats, iShopChangi, CapitaEats and eCapitaMall, provided participating tenants with additional sales channels and allowed them to expand their market catchment beyond Changi Airport.

JCAD also continued to attract visitors to Jewel with novel offerings and activities. In March 2022, it launched the Jewel-rassic Quest – a dinosaur-themed game which uses augmented reality technology that allowed dinosaur-lovers to see magnificent prehistoric creatures roaming in the Shiseido Forest Valley and other places in Jewel. Participants could also go on a treasure hunt for dino eggs or immerse in simple games such as playing pretend to be an archaeologist.

## Special events to attract visitors and attention

As one of Singapore's most iconic destination, Jewel was selected by the People's Association (PA) as the venue for its Golden Jubilee Chingay50 celebration in February 2022. Chingay is an annual parade held as part of the Lunar New Year celebrations to showcase Singapore's multicultural heritage. The 1.5-hour extravaganza, hosted by Prime Minister Lee Hsien Loong and graced by guest-of-honour President Halimah Jacob, was held in the heart of Jewel, against the backdrop of the world's tallest indoor waterfall and amid the lush greenery of the mall's indoor garden.

The event featured a line-up that included special effects and interactive floor projections, with both traditional and modern elements that appealed to both



>> Jewel was selected as the venue to hold the Chingay50 celebration.



>> Mediacorp's annual extravaganza Star Awards 2021 was one of the many events that helped Jewel maintain top-of-mind recall during the pandemic.

the young and old. JCAD worked seamlessly with the PA team to facilitate the big-scale event that required installation of heavy-duty equipment and other logistical requirements, delivering a memorable milestone event in the history of Singapore.

Through strategic partnerships forged with the Singapore Tourism Board and Mediacorp, JCAD also ensured that Jewel gained top-of-mind recall with visitors even during the pandemic. It hosted events such as Mediacorp's annual extravaganza Star Awards 2021 and was the location of choice for an episode of reality TV programme, *The Apprentice*. These shows were aired to both local and regional audiences and profiled Jewel in a never-before-seen light.

#### Popular programmes returned with refreshing twists

As part of the 2021 year-end activities, the Changi Experience Studio in Jewel brought back its popular educational overnight camps and other day programmes for a second time, after an inaugural sell-out run the year before.

Several new ideas were injected to enhance and refresh the various product offerings. These included the introduction of new workshops – an airport-themed Design Thinking workshop and a DJI Robomaster workshop. There were also other programme enhancements, such as the addition of a moss wall craft workshop to the nursery tour and more simulation activities to the Airport Emergency Experience.

Glamming on Cloud9 Piazza at the topmost level of Jewel also returned with a twist, in the form of a five-hour Glam-party concept which included a festive feast set-up in collaboration with Changi Eats, as well as games and visits



>> Jewel-rassic Quest allows dinosaur-lovers to see magnificent prehistoric creatures such as the T-Rex and Velociraptor, and take part in mini games in Jewel.



## Through strategic partnerships, JCAD ensured that Jewel gained top-of-mind recall with visitors even during the pandemic.

to attractions. The programmes received close to 3,000 bookings and all activities were sold out.

During the December school holidays, visitors were also treated to a visual feast of snowfall against the backdrop of a 16-metre-tall Christmas tree. Destination-themed installations featuring iconic global landmarks were set up in the Shiseido Forest Valley and Canopy Park, providing visitors with plenty of novel photo opportunities.

#### Most awarded mall in Singapore

For its unique leisure offerings, Jewel received six awards in 2021,

entrenching its position as the most awarded mall in Singapore. It won Design of the Year award in the President's Design Award (P\*DA) 2021. The P\*DA is Singapore's highest honour for designers and designs across all disciplines and the award is conferred by the President of the Republic of Singapore and jointly administered by the DesignSingapore Council and the Urban Redevelopment Authority (URA).

Jewel was also recognised as a 2021 Tripadvisor Travellers' Choice award winner in the attractions category, placing it among the top 10% of attractions worldwide. This award celebrates businesses that consistently deliver memorable experiences to visitors and earn great reviews on Tripadvisor over the past year.

In addition, Jewel clinched the Outstanding Shopping Mall Experience Award at the Singapore Tourism Awards 2021 for the second consecutive year. Other awards included the Luxury Lifestyle Awards 2021 for The Best Luxury Shopping Mall in Singapore; BCA Awards 2021 for Construction Excellence Award and the International Architecture Award 2021.

# PROVIDING ONE-STOP TRAVEL SERVICES

Changi Travel Services (CTS), a wholly-owned subsidiary of CAG, provides travel solutions for leisure and business travellers.

As border restrictions were relaxed and more travellers started streaming into Singapore through the Vaccinated Travel Lanes (VTLs) from September 2021, CTS stepped up its travel-related services in order to provide visitors a safe and smooth travel experience.

When the Singapore government required travellers entering Singapore to download the TraceTogether (TT) app on their mobile phones, CTS provided the rental of TT tokens for travellers who do not have phones. CTS provided supporting technology and manpower across many Singapore checkpoints (air, land and sea) for this cross-agency collaboration, and the TT token rental service played a critical role in Singapore maintaining its edge as a safe travel destination amid the global pandemic.

CTS, through its Changi Assure brand, was also one of the three local insurers to provide Covid-19 travel insurance for inbound visitors, offering coverage options that were in line with local regulations.

Its core Changi Recommends brand continued to serve passengers with meet-and-greet concierge services, adding to its suite of offerings for travellers.

## New business ventures

To offer a wider range of travel-related services to travellers, CTS also made its first foray into the telecommunications industry by partnering M1 as a Mobile Virtual Network Operator (MVNO). It launched Changi Mobile in September 2021 and, within four months, garnered a healthy take-up of more than 10,000 subscribers. Changi Mobile continues to finetune its strategy and strengthen its brand identity as it rolls out new incentives to

attract new customers and retain existing ones.

To reduce the hassle of travellers having to withdraw large sums of money from the bank and changing foreign currencies at brick-and-mortar stores, CTS also launched its own foreign exchange service in the first quarter of 2022. Travellers can now order and pay for their desired currencies online and collect at Changi Airport just before they fly, or after they land.



>> CTS launched Changi Mobile in September 2021.



>> Travellers can now order and pay for their desired currencies online and collect at the airport just before they fly, or after they land.

# EXPANDING CHANGI'S EXPERTISE



>> Contactless solutions were implemented at Clark International Airport's new passenger terminal for greater convenience.

As part of its new business initiatives, Changi Airports International (CAI), a wholly-owned subsidiary of CAG, partnered Singapore Exchange to launch the iEdge-GateEq Aviation and Travel Index in November 2021, providing investors with another product within the global aviation and travel industry.

During the year, CAI continued to consult for overseas airports. In China, CAI clinched a new commercial advisory contract with Jinan Yaoqiang International Airport and consulted for Changsha Huanghua International Airport. It continued to optimise the passenger flow and commercial layout for Guangzhou Baiyun International Airport's new Terminal 3, existing Terminal 2, and a satellite terminal, as part of a five-year partnership. It also trained airport professionals from Beijing Daxing International Airport in areas such as smart technology application.

CAI holds a 49% stake in Sino-Singapore Chongqing Airport Commercial Management Co., Ltd, a joint venture with Chongqing Airport Group, which manages the non-aeronautical business of

Chongqing Jiangbei International Airport. Domestic traffic grew strongly until it was curtailed by fresh Covid-19 outbreaks in China from August 2021. The joint venture continued to attract new tenants to uplift commercial experience.

## Overseas investments

CAI has investments in overseas airports. In Brazil, CAI has a 51% stake in the concessionaire which operates Tom Jobim International Airport in Rio de Janeiro. The Covid-19 pandemic continued to weigh on the airport's performance. Brazil's deep economic recession, coupled with the global Covid-19 pandemic that impacted travel demand, made it untenable for the concession to continue under the existing terms of the agreement. The concessionaire filed for the return of the airport concession in February 2022. Until a new operator is selected, the concessionaire continues to manage the airport.

In India, CAI holds a 30% stake in Bengal Aerotropolis Projects Limited, which develops Durgapur Aerotropolis, India's first privately managed airport city. At Kazi Nazrul Islam Airport, Indigo and Spicejet operated up to six weekly

flights to connect to the five largest metropolitan airports in India (outside West Bengal state), namely Bangalore, Chennai, Delhi, Hyderabad and Mumbai. The average load factor for Chennai and Mumbai had reached pre-Covid levels by March 2022. Despite the pandemic, demand for land at the aerotropolis stayed strong.

CAI and its partners operate Fukuoka Airport through Fukuoka International Airport Co. (FIAC). Domestic traffic recovered to 50% of pre-Covid levels, while international traffic remained restricted by border controls. FIAC implemented strict operating expense discipline, deferred major capital expenditures, and obtained financial support from government agencies and lenders.

In the Philippines, CAI holds a 15% stake in Luzon International Premiere Airport Development Corp (LIPAD), which operates and maintains Clark International Airport. The airport grew its cargo flights by 10% year-on-year and recorded a 10% increase in cargo tonnage. CAI worked with LIPAD and various stakeholders to complete operational readiness trials for the new 110,000-square-metre passenger terminal. It opened on 2 May 2022 and was the first in the Philippines to deploy a full suite of contactless passenger solutions.

In Russia, CAI's airports in Anapa, Krasnodar and Sochi saw significant growth in domestic traffic and a strong recovery in international traffic. However, on 24 February 2022, the Russia-Ukraine conflict led to the closure of airspace in southern Russia. Flight operations at Krasnodar and Anapa International Airports were suspended, while Sochi International Airport continued to operate as an alternative hub. The ensuing conflict and disruption to flight operations impacted the airports' performance in the last month of the financial year.

# FORTIFYING THE WORKFORCE

In 2021, the battle against Covid-19 became more complex with the emergence of more infectious variants. Amid the turbulent situation, CAG continued to provide for flexible work arrangements for its employees. In the office, the company ran a tight operation to ensure a safe work environment through close contact tracing of employees who tested positive for Covid-19. The work cubicles and other workspaces visited by these employees were promptly disinfected to keep the office safe.

CAG also worked swiftly with its airport partners to ensure that employees working in the frontline were well-protected from the risk of virus transmission. More Personal Protective Equipment (PPE) were procured, and employees were also trained to be certified mask-fitters. Antigen Rapid Test kits were distributed to all employees through the airport community's network of Business Continuity Planning managers and vending machines located across various work areas.

## Keeping the team engaged

As CAG continued its hybrid work arrangements, employee

communication, engagement and well-being remained a key goal throughout the year.

CAG kept employees updated through three townhalls, which saw record high participation of more than 75%. The company also made use of internal communications channels such as In.Touch, its internal social media platform, and electronic direct mailers, to keep its employees abreast of important airport and company ongoings.

Through these internal communication channels, CAG celebrated with its employees achievements like the Skytrax 2021 award for World's Best Airport Staff and ACI's 2021 ASQ award for Best Airport in the Asia-Pacific. New initiatives, like the launch of the Changi Pay e-wallet, and community happenings, such as VIP visits, were also publicised through these channels.

To allow employees to know their community better and foster a closer bond among the CAG family, colleagues were featured on In.Touch for occasions like the Service Appreciation Awards.

Employees were encouraged to use the platform to share about their work and personal interests. Calls to rally the community to participate in internal campaigns or volunteering opportunities were also made via In.Touch and other internal communications platforms.

With Covid-19 casting a pall over employees' mental well-being, CAG also supported its people with initiatives that helped to assuage their anxiety and restore work-life balance. This included the continuation of its Healthy Habits, Happy Life (HHHL) initiative. Under this programme, an app was introduced for employees to sign up for health activities and track their progress. The app was launched in April 2021 with a live exercise session featuring CAG's senior management. Since then, about 400 employees have been using it every month to support their wellness anywhere, anytime.

During this period, keeping a pulse on Employee Engagement was also critical. Throughout the year, quick polls via intranet pop-up windows and a pulse survey were introduced in addition to the annual employee engagement survey. This allowed the company to gather insights, receive feedback on the progress of measures taken, as well as address employees' areas of concern.

## Cultivating a culture of innovation

To emerge stronger from this crisis, CAG continued to build agile mindsets among its people and prepare them for the future of work. It invested in embedding new digital skillsets to enable innovation and transformation within the organisation. With the aspiration to become Singapore's most innovative company, a virtual Learning Festival themed 'Explore the Innoverse' was held in November 2021. Employees shared stories on how the CAG Leadership Principles and Growth Mindset guided them to experiment and



>> A live exercise session, conducted by CAG's very own fitness enthusiasts and supported by members of senior management, was broadcast online.

scale up their ideas. E-learning courses were also handpicked to supplement employees with innovation-related learning.

To help employees thrive in change, the Growth Mindset programme continued into its second year. In January 2022, CAG's management committee piloted Growth Meetings with the aim of creating an environment conducive for promoting experimentation. Training sessions were rolled out to people managers and enterprise leaders to equip them with the tools and skills for engaging their teams. Marketing campaigns were also rolled out to encourage the use of growth language at work.

In line with efforts to catalyse the development of new ideas and foster applied learning, the CAG Accelerator Programme was launched in November 2021, enabling employees to tap an internal network of consultants, sharpen ideas and explore technological possibilities. This helped employees identify the right approaches to deliver impactful solutions to enable innovation to take place across all levels within the organisation.

### Strengthening employer branding

Despite the challenging outlook on aviation in financial year 2021/22, CAG continued to focus efforts in emphasising its value proposition – creating and maintaining a nurturing environment for employees to grow professionally while making a purposeful difference to the growth of Singapore's air hub, aviation community and Singapore. This has helped maintained CAG's position as an employer of choice, with industry affirmation coming in the form of three notable awards, namely, the Randstad Employer Brand Award for the second most attractive employer in Singapore, Singapore's 100 (S100) Leading Graduate Employers (winner in Aviation, Transport & Supply Chain)



>> Changi Foundation, together with over 30 other airport partners and individual airport staff, donated S\$1.1 million worth of medical supplies to the Indonesian Ministry of Health in August 2021.

and a Gold award for Excellence in Crisis Management and Recovery in the HR Excellence Awards.

The Randstad Awards recognise the most attractive employers in 33 markets across the globe. This is the eighth consecutive year that CAG was ranked among the top three most attractive employers in Singapore.

The S100 Leading Graduate Employers ranking is the largest and longest-running study on graduate recruitment trends in Singapore. CAG also placed second in another sector category – Hospitality and Leisure & Tourism.

Held for the ninth year, the 2021 HR Excellence Awards honour distinguished organisations in Asia with exceptional employee management programmes and robust human resource strategies. CAG was recognised for proactively identifying crises, crafting plans, implementing strategies and tracking progress – all while keeping employees motivated, engaged and safe.

### Corporate social responsibility

Even with the pandemic throwing new curveballs during the year, CAG remained steadfast in cultivating an organisation that

cares for the community by creating opportunities for employees to give back to society via its philanthropic arm, Changi Foundation.

At the peak of the Covid-19 pandemic, when the virus had a firm grip on Singapore's neighbours, the Changi Airport community came together to support Indonesia. Changi Foundation, together with over 30 other airport partners and individual airport staff, donated 1,380 oxygen concentrators, 15,350 nasal cannulas, and 500 cannula connectors to the Indonesian Ministry of Health in August 2021. The shipment, valued at over S\$1.1 million, was shipped from Los Angeles to Jakarta by airline partners Cargolux and Singapore Airlines, with SATS and CEVA Logistics supporting the ground handling.

Changi Foundation also partnered Metta Welfare Association to provide special-needs youth with training and employment opportunities. Volunteers from CAG empowered artists from the Association's Arts@Metta programme with conversational and story-telling skills to promote their artistic creations. The programme culminated in a virtual art fair held in December 2021, where the artists sold their creations to a virtual audience.

# STRENGTHENING BONDS WITH OUR GLOBAL FANS

During the year, Changi Airport continued to engage both local and global audiences through its social and online platforms to retain top-of-mind awareness and build brand love. Against the backdrop of a crowded social media space, its Facebook page reached another key milestone, hitting a new record of five million followers.

At the onset of the pandemic, CAG developed a Covid-19 information hub on the Changi Airport website that included a comprehensive list of frequently asked questions. The information hub was a useful resource for travellers who needed help navigating the processes of travelling into and through Singapore.

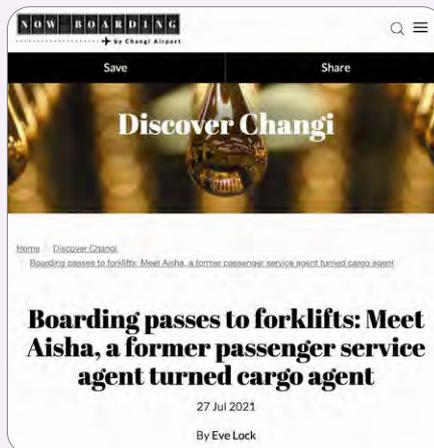
Besides being a credible source of information for travellers, CAG's social and online content also served to keep the airport community and visitors abreast of the measures implemented in Changi for safe travel.

As travel picked up with the introduction of Vaccinated Travel Lanes (VTLs), Changi Airport's online channels became key go-to sites for passengers seeking information about visiting Singapore.

## Engaging fans with creative content

More than 3,000 pieces of social media content on the latest travel information and offerings of Changi Airport were shared during the year, reaching close to 600 million people online. To engage the fans and followers of Changi Airport, CAG produced relevant content that kept up with trending topics on social media.

With the pandemic casting the spotlight on frontline workers, CAG also profiled members of the airport community on its blog, Now Boarding. The heart-warming stories of how they coped with the changes and challenges at work during the pandemic were further amplified on Changi's social media platforms such as Facebook, Instagram and LinkedIn. Some of the featured profiles included Aisha, a former Passenger Service Agent turned Cargo Agent from dnata. Her story was well-received by the public, reaching over 6,000



>> With the spotlight on aviation frontline workers, CAG also profiled some of them on its blog, Now Boarding.



>> Changi Airport stayed on top of trending topics by producing content with a Changi twist for its social media platforms, including its very own take of the 'dalgona' challenge from the hit Netflix series, Squid Game.

page views, and was cited by Prime Minister Lee Hsien Loong in his 2021 National Day Rally speech.

## Maintaining Changi's mindshare in key travel markets

While travel curbs were still in place, CAG continued to engage the communities in its key overseas travel markets in Australia, China and Indonesia to maintain Changi's mindshare in these countries.

Changi Airport's Instagram account for the Indonesian market (@changiairport.id) was launched in August 2021 and provided an avenue to reach Indonesians more effectively and inform them of happenings in Changi.

Themed social content and campaigns were also created and carried out in the different overseas markets, promoting Changi and Singapore as a travel destination. Notable campaigns include 'Chalo Changi' – a Bollywood-themed social media campaign to woo travellers to bring their dreams to life and create unique experiences at Changi Airport, as well as 'I Miss Changi' – a key running content theme for Australians and New Zealanders.