

同心互勵 創建未來





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## 抱負 VISION

致力提供優質機電工程服務，精益求精，以提升市民的生活質素。

To improve the quality of life for our community through continuous enhancement of our electrical and mechanical engineering services.

## 使命 MISSION

### 客戶 CUSTOMER

提供優質的工程方案，以滿足客戶的需要。

Providing quality engineering solutions to satisfy our customers' needs.

### 員工 STAFF

建立一支卓越的員工隊伍，並維持和諧的工作環境。

Developing a competent workforce and maintaining a harmonious environment.

### 部門 ORGANISATION

掌握科技發展和流程改善，以提供更佳服務。

Keeping pace with technology development and process improvement for service enhancement.

## 信念 VALUES

### 誠信 INTEGRITY

我們秉持誠信，維持良好道德操守。

We uphold honesty and integrity to embrace an ethical culture.

### 出色服務 SERVICE EXCELLENCE

我們提供安全可靠、高效率、具成本效益和優質的服務。

We provide safe, reliable, efficient, cost-effective and quality services.

### 關懷 CARING

我們關懷員工、客戶和市民大眾，並重視環保。

We care for our staff, customers, community and the environment.

### 以客為本 CUSTOMER FOCUS

為滿足客戶的各種需要，我們盡心竭力，積極提供工程方案，以贏取客戶的信任和 support。

We focus on the needs of our customers and provide engineering solutions in a proactive and responsible manner to win their trust and support.

### 承擔 COMMITMENT

我們言行一致，信守承諾。

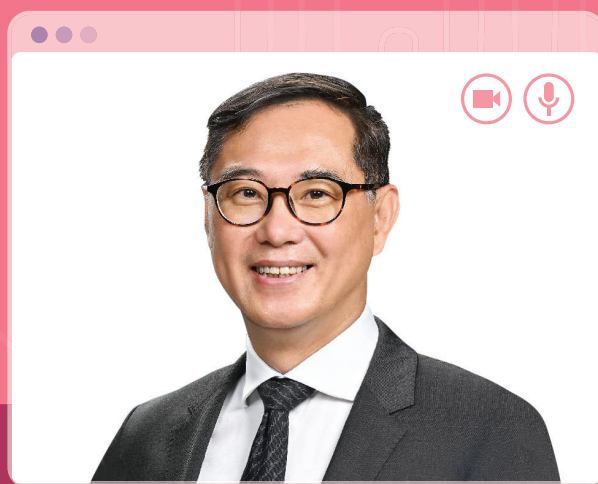
We do what we promise.







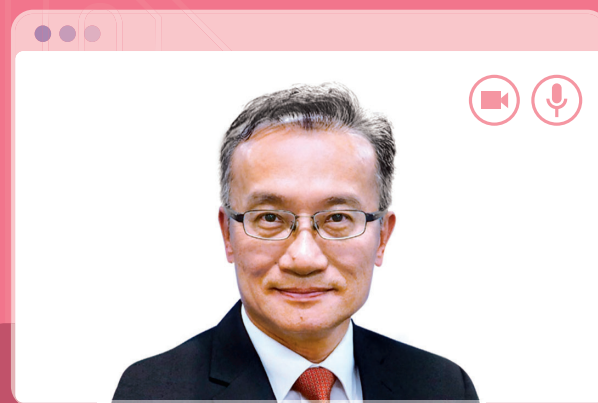
## 常務委員會 Executive Board



### 主席 CHAIRMAN

**1** 劉俊傑太平紳士  
Mr Lau Chun-kit, Ricky, JP

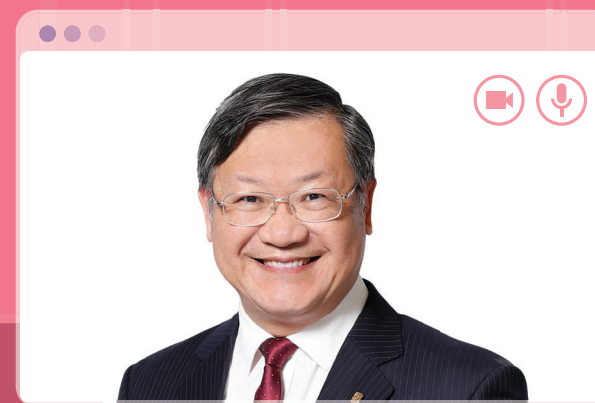
發展局常任秘書長(工務)  
Permanent Secretary for Development (Works)



### 成員 MEMBERS

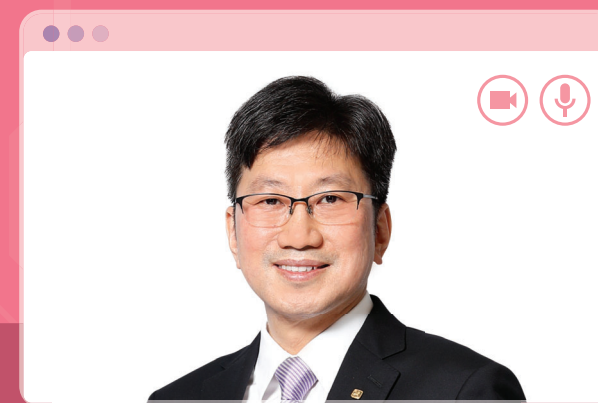
**2** 周紹喜太平紳士  
Mr Chau Siu-hei, Francis, JP

發展局副秘書長(工務)3  
Deputy Secretary for Development (Works) 3



**3** 彭耀雄太平紳士  
Mr Pang Yiu-hung, JP

機電工程營運基金總經理  
(機電工程署署長)  
General Manager, EMSTF  
(Director of Electrical and Mechanical Services)



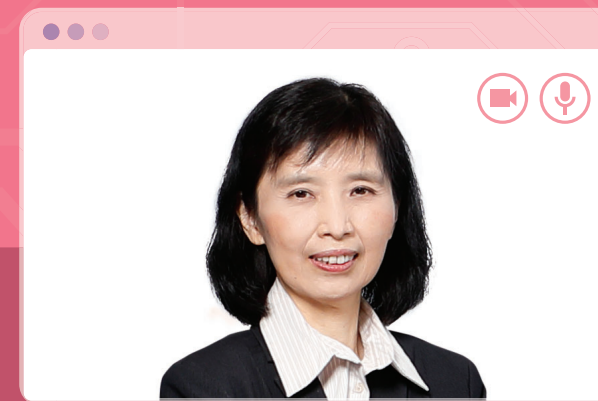
**4** 張遠芳太平紳士  
Mr Cheung Yuen-fong, JP

機電工程署副署長/營運服務  
Deputy Director/Trading Services, EMSD

### 秘書 SECRETARY

**5** 韋美珠女士  
Ms Wai Mei-chu, Jenny

署理機電工程署主任秘書  
Departmental Secretary (Acting), EMSD



• 林世雄太平紳士出任發展局常任秘書長(工務)至2021年10月7日  
Mr Lam Sai-hung, JP was Permanent Secretary for Development (Works) up to 7 October 2021

• 袁秀明女士出任機電工程署主任秘書至2022年5月17日  
Ms Yuen Sau-ming, Anna was Departmental Secretary, EMSD up to 17 May 2022





## 管理委員會 Management Board

### 主席 CHAIRMAN

1

**彭耀雄太平紳士**  
**Mr Pang Yiu-hung, JP**

機電工程營運基金總經理  
(機電工程署署長)  
General Manager, EMSTF  
(Director of Electrical and  
Mechanical Services)



### 成員 MEMBERS

2

**張遠芳太平紳士**  
**Mr Cheung Yuen-fong, JP**

機電工程署副署長 / 營運服務  
Deputy Director/Trading Services, EMSD

3

**陳嘉聰先生**  
**Mr Chan Ka-chung**

機電工程署助理署長 / 1  
Assistant Director/1, EMSD

4

**黃偉光先生**  
**Mr Wong Wai-kwong**

機電工程署助理署長 / 2  
Assistant Director/2, EMSD

5

**陳志偉太平紳士**  
**Mr Chan Chi-wai, Richard, JP**

機電工程署助理署長 / 3  
Assistant Director/3, EMSD

6

**李慧儀女士**  
**Ms Lee Wai-yee**

機電工程署總庫務會計師 / 財政管理  
Chief Treasury Accountant/  
Financial Management, EMSD

7

**劉志偉先生**  
**Mr Lau Chi-wai, Wilfred**

機電工程署員工關係主任  
Staff Relations Officer, EMSD

### 秘書 SECRETARY

8

**韋美珠女士**  
**Ms Wai Mei-chu, Jenny**

署理機電工程署主任秘書  
Departmental Secretary (Acting), EMSD

\* 袁秀明女士出任機電工程署主任秘書至2022年5月17日  
Ms Yuen Sau-ming, Anna was Departmental Secretary, EMSD up to 17 May 2022



# 總經理報告

## General Manager's Report

機電工程營運基金(營運基金)在2021/22年度表現優秀，成績斐然，抗疫工作尤其出色。營運基金同事為客戶及公眾提供全面的機電工程服務，以及數碼與創新科技(創科)方案，成效卓越。

年內營運基金業務穩健，並持續增長。由於我們成功為2021/22年度屆滿的所有服務水平協議續約，並透過參與公開招標贏得新業務，總收入上升約1.6%，增至87.19億港元。收入回報率則維持於2.9%的穩定水平，符合我們收回成本的營運原則，讓客戶能保留資金，為公共服務創造最大價值。

### 四大範疇的佳績

#### 抗疫工作

儘管第五波疫情於2022年年初為香港帶來沉重打擊，我們的同事始終團結一致，同心合力為港抗疫。營運基金在抗疫過程中不但成功運用創科方案，更展現了本港聞名於世的「拼搏精神」和「香港速度」。

舉例而言，我們於14天甚至更短的時間內，提供機電工程支援，把現有場地改裝為社區隔離設施，並於2022年年初為600多個場地進行通風測試，以便有需要時可作為全民強制檢測中心。

第五波疫情高峰期間，本港對遺體貯存設施出現前所未見的龐大需求。我們協助客戶在富山公眾殮房和葵涌公眾殮房附近，設立戶外冷凍櫃，以提供臨時遺體貯存空間，並聯絡中華電力有限公司，為此協調安裝臨時供電系統。團隊也加快處理富山公眾殮房重置項目第一期的測試和校驗工作，使設施提早投入服務。兩項工程提供了數以千計的額外貯存空間，而營運基金所有策略業務單位在解決種種難題的過程中，都展現出超乎想像的積極性、睿智和速度。

The Electrical and Mechanical Services Trading Fund (EMSTF) performed well in 2021/22, with pleasing results in all areas of work, especially in the anti-epidemic efforts. The EMSTF colleagues demonstrated excellence in serving client departments and the public through comprehensive electrical and mechanical (E&M) engineering services, as well as digitalisation and innovation and technology (I&T) solutions.

The EMSTF saw healthy business and sustained growth in the year. The total revenue rose by about 1.6% to HK\$8,719 million, as we successfully renewed all existing Service Level Agreements due for expiry in 2021/22 and won new businesses through open tender. The return on revenue remained stable at 2.9%, in line with our cost recovery operating principle to enable clients to retain funding for their public services.

### ACHIEVEMENTS IN FOUR AREAS

#### Anti-Epidemic Work

Though Hong Kong was hard hit by the fifth wave of the epidemic in early 2022, our colleagues united in the mission to help the city beat the virus. The EMSTF not only successfully deployed I&T solutions in the process, but also demonstrated the “can-do spirit” and “Hong Kong speed” which our city is known for.

To cite a few examples, we provided E&M support for the conversion of existing venues into Community Isolation Facilities often within 14 days or less, and conducted ventilation assessment at over 600 venues in early 2022 for use as Compulsory Universal Testing Centres if necessary.

We also helped clients meet the unfortunately huge demand for body storage spaces at the peak of the fifth wave by setting up outdoor refrigerated containers near the Fu Shan Public Mortuary (FSPM) and Kwai Chung Public Mortuary to provide temporary body storage spaces and liaised with CLP Power Hong Kong Limited to install a temporary power supply system for the purpose. Our team also accelerated the testing and commissioning of phase one of the FSPM rep provisioning project to enable the launch of the facilities ahead of schedule. The efforts quickly brought about thousands of extra storage spaces to meet the surging demand. In addressing these daunting tasks, all our Strategic Business Units (SBUs) demonstrated great enthusiasm, ingenuity and speed never thought possible before.

至於「圍封強檢」行動方面，我們提供人力、物資及其他資源，例如在行動現場運用團隊的資訊科技專長，進行數據配對，使行動更有效率。我們同事的「拼搏精神」，在行動中表露無遺，贏得客戶和其他持份者的讚賞。

我們在2022年2月也應當局要求，運用營運基金在操作客戶故障熱線及提供客戶服務方面的豐富經驗，於短時間內為政府的專屬的士車隊設立電話熱線系統。專屬車隊為確診2019冠狀病毒病的居家隔離病人，提供免費接送往返指定診所及其住所的服務，避免造成社區感染。

For the “restriction-testing declaration” (RTD) operations, we provided manpower, supplies and other resources such as information technology expertise for on-site data mapping to enhance the efficiency of the operations. The “can-do spirit” of our colleagues in these operations has won praise from the Government and other stakeholders.

We were also called upon to set up a hotline for the Government’s designated taxi fleet in February 2022 at short notice, with our rich experience in operating client fault call hotline system and providing customer service. The fleet provided Coronavirus Disease 2019 patients in isolation at home with free transport services between the designated clinics and their residences to avoid infection in the community.

彭耀雄太平紳士  
Mr Pang Yiu-hung, JP

機電工程營運基金總經理  
General Manager, Electrical and Mechanical Services Trading Fund





## 總經理報告 General Manager's Report

### 政府技術顧問

年內我們進一步加強擔任政府技術顧問的工作，涉及範圍已不限於提供機電工程服務。事實上，我們善用專業才能、科技和財務這三方面的優勢，為客戶及公眾提供各種增值服務。舉例我們的同事自願參與多項抗疫行動，包括為爆發羣組感染的堂食食肆進行通風調查。我們一位同事更以觀察員身份，為餐飲處所換氣量或空氣淨化設備工作小組提供專業意見。

我們的多個團隊為有意參加指定檢疫酒店計劃的酒店進行通風檢測，並提供專業意見，確保其通風設施符合感染控制規定；我們也於多幢出現感染羣組的住宅樓宇，協助進行通風調查工作。

### 創科成績獲肯定

要全面回顧年內的工作，不得不提我們近年在創科方面的努力，已見初步成效。營運基金主動協助客戶為其機電資產進行數碼化，並促進客戶使用各種創科方案，過程中更贏取不少獎項，包括於2022年日內瓦國際發明展榮獲19個獎項。年內另一個重要獎項是在建造業議會舉辦的2021建造業議會數碼化大獎贏得的機構類別（客戶）金獎，這個獎項表揚我們致力運用創科，為客戶提升服務成效。

### 國際交流

國際及區域交流合作是營運基金第四個創出佳績的範疇。事實上，中華人民共和國中央政府也期望香港繼續進行國際交流。誠如國家主席習近平先生在慶祝香港回歸祖國25周年的講話中提到，香港的四個「必須」之一，是「必須保持香港的獨特地位和優勢」，以「拓展暢通便捷的國際聯繫」。

我們也是本着這種精神，一直積極拓展各項國際聯繫，例如於2021年年底與內地伙伴合辦名為「國際建築機電人工智能大挑戰」的活動，讓來自全球各地的參加者，就應用語義人工智能提升建築物機電設施的操作及維修保養工作，進行知識交流。

### 總結第五波疫情的抗疫經驗：硬件和軟件

第五波疫情的抗疫經驗顯示抗疫的「硬件」和「軟件」同樣重要。「硬件」包含各種必須於極短時間內準備就緒的抗疫物資、系統、儀器和創科方案等，而「軟件」則指在面對各種變數和前所未見的挑戰時所展現的技能和才能，包括團隊合作精神和協作能力。

### Government's Technical Advisor

During the year we stepped up our role as the technical advisor to the Government, above and beyond our duty as an E&M service provider. Indeed, leveraging our strength in the three aspects of expertise, technology and finance, we provided value-added services to clients and the community. Colleagues voluntarily took part in diverse anti-epidemic operations including ventilation assessments at the dine-in restaurants with cluster outbreaks. In fact, one of our colleagues is an observer contributing his expertise to the Working Group on Air Change or Air Purifiers in Catering Premises.

Our teams inspected hotels interested in joining the Designated Quarantine Hotel Scheme and gave professional advice to ensure that their ventilation facilities fulfil the infection control requirements; and assisted in ventilation investigations at residential buildings with cluster outbreaks.

### I&T Recognition

This review would not be complete without outlining the initial achievements of our I&T efforts in recent years. The EMSTF has proactively facilitated the digitalisation of clients' E&M assets and their use of I&T solutions, winning many awards along the way, including 19 medals from the International Exhibition of Inventions of Geneva 2022. Another significant recognition of our commitment to harnessing I&T to improve client operations was the Gold Award in the Organisation (Client) category of the CIC Construction Digitalisation Award 2021 organised by the Construction Industry Council (CIC).

### International Exchange

International and regional co-operation was the fourth area of our achievement. Indeed, the Central Government of the People's Republic of China expects Hong Kong to maintain its international exchanges. As President Xi Jinping noted in his speech marking the 25th anniversary of Hong Kong's return to the motherland, one of the four "musts" is that "we must maintain Hong Kong's distinctive status and advantages" so as "to expand and facilitate its exchanges with the world".

It is in this spirit that we have forged various international exchanges, such as the Global AI Challenge for Building E&M Facilities which we jointly organised with the partners in the Mainland in late 2021 for participants from around the world to advance and exchange their knowledge in using semantic artificial intelligence (AI) to enhance the operation and maintenance of building E&M facilities.

### INSIGHTS FROM FIFTH WAVE OF THE EPIDEMIC: HARDWARE AND SOFTWARE

Experience from fighting the fifth wave of the epidemic shows that anti-epidemic "hardware" and "software" are equally important. The "hardware" covers the necessary anti-virus supplies, systems, equipment and I&T solutions which must be ready to be deployed at very short notice. "Software" refers to skills and capabilities, including teamwork and collaboration in the face of uncertainties and unprecedented challenges.

年內我們既努力強化「硬件」，同時也在各層面提升「軟件」。團隊內部的協作由分部開始，例如在「圍封強檢」行動中，多個分部共同協作去完成任務。另外有些工作則涉及跨部別協作，例如衛生工程部、市政工程部和綜合工程部攜手合作，研發社區疫苗接種中心遙距監察系統。

衛生工程部首先受委託，為社區疫苗接種中心研發綜合疫苗冷藏櫃監察系統，以物聯網技術監察儲藏疫苗的冷藏櫃。市政工程部和綜合工程部隨後把系統擴展成為社區疫苗接種中心遙距監察系統，增添了監察升降機與自動梯、空調系統和供電系統的功能。所有數據均會傳輸到機電工程署（機電署）總部的區域數碼監控中心，以及我們位於政府總部的區域數碼監控中心儀表板，進行全天候24小時監察。這個跨部別項目相當成功，大大提升了社區疫苗接種中心的營運效率和疫苗儲存的成效。

此外，很多抗疫工作都需要跨部門協作，包括於極短時限內成立社區隔離設施、為公眾殮房增加遺體貯存設施以及進行「圍封強檢」行動等。在這共同協作的作品中，我們的同事都能與其他政府部門人員表誠合作完成任務，表現非常出色。能與眾多不同人士在不同情況下合作，是很寶貴的實力，營運基金未來定能與其他機構繼續合作無間。

### 為減碳出一分力

在2021/22年度，我們致力減碳工作，以協助政府於2050年或以前達致碳中和。政府在2021年10月公布了《香港氣候行動藍圖2050》，提出四大減碳策略，即「淨零發電」、「節能綠建」、「綠色運輸」和「全民減廢」。營運基金積極參與落實有關策略。

「淨零發電」策略旨在不再使用煤作日常發電，並於2035年或以前，把可再生能源在發電燃料組合中的比例增加至7.5%至10%，往後再提高至15%。就此，我們各策略業務單位繼續為客戶部門的政府辦事處及公共場地，安裝太陽能發電系統，加強使用可再生能源。

我們也積極支持「節能綠建」策略。政府的目標是在2050年或之前，商業樓宇耗電量較2015年減少三至四成，以及住宅樓宇耗電量減少兩至三成；並在2035年或之前能達到以上目標的一半。在這方面，我們的策略業務單位一直為客戶進行能源審計，並就各種能源管理機會落實措施，又於政府建築物及場地進行改裝工程，以加強能源效益。各策略業務單位同時已開始應用人工智能技術優化製冷機組的操作，例如將軍澳醫院的製冷機組經運用人工智能後，醫院總耗電量節省了6%。

As we strove to enhance our "hardware", our "software" also improved on many levels. Collaboration started at sub-division level, including colleagues from different sub-divisions working together in RTD operations. Certain tasks also required cross-divisional collaboration, such as the development of a Community Vaccination Centre (CVC) Remote Monitoring System involving our Health Sector Division (HSD), Municipal Sector Division (MunSD) and General Engineering Services Division (GESD).

The HSD was entrusted first to develop an integrated Fridge Monitoring System (iFMS) for the CVCs, using Internet of Things technology to monitor the medical fridges for vaccine storage. Colleagues of the MunSD and GESD then helped expand the iFMS to become the CVC Remote Monitoring System, which covered also lifts and escalators, air-conditioning and power supply systems. All data were transmitted to our Regional Digital Control Centre (RDCC) at the Electrical and Mechanical Services Department (EMSD) Headquarters and our RDCC dashboard in the Central Government Offices for round-the-clock monitoring. The cross-division project was a success and greatly enhanced the operation efficiency of the CVCs and storage of vaccines.

Many anti-epidemic tasks called for inter-departmental collaboration, including setting up Community Isolation Facilities, increasing body storage spaces at public mortuaries and carrying out RTD operations, all at short notice. Our colleagues have excelled in these joint tasks, working well with staff from other departments. The ability to collaborate with different people under different circumstances is valuable, and the EMSTF will no doubt collaborate effectively again with other organisations in future.

### CONTRIBUTING TO DECARBONISATION

In 2021/22, we focus on decarbonisation work to help the Government achieve carbon neutrality by 2050. In October 2021, the Government announced Hong Kong's Climate Action Plan 2050 which outlined four major decarbonisation strategies, namely "net-zero electricity generation", "energy saving and green buildings", "green transport" and "waste reduction". The EMSTF has a role to play in implementing these strategies.

The "net-zero electricity generation" strategy aims to cease using coal for daily electricity generation and increase the share of renewable energy (RE) in the fuel mix for electricity generation to 7.5% to 10% by 2035, and to 15% subsequently. In this regard, various SBUs have continued to help client departments install solar photovoltaic systems at government offices and public venues so as to use more RE.

We also proactively supported the "energy saving and green buildings" strategy. It is the Government's goal to reduce the electricity consumption of commercial buildings by 30% to 40% and that of residential buildings by 20% to 30% by 2050 from the 2015 level, and to achieve half of these targets by 2035. The SBUs have been helping clients conduct energy audits, implement measures regarding energy management opportunities and perform retrofitting works in government buildings and venues to make them more energy efficient. Our SBUs have also been deploying AI to optimise chiller plant operation, for example, such arrangement for Tseung Kwan O Hospital has achieved a saving of about 6% of the total electricity consumption of the hospital.



## 總經理報告 General Manager's Report

### 與內地進一步合作

年內，我們繼續與內地進行各種合作。作為「聯繫人」，我們的主要職能在於運用我們在科技和人才方面的優勢，促進香港與內地的經濟進一步融合。

我們有一個新構思，就是由機電署與個別人士、機構、業界、學術界及科研機構攜手合作，成立「機電人工智能實驗室」，目的是加快促成各方建立合作伙伴關係，以支援適用於建築物機電設施的大數據及人工智能發展。該實驗室本質上會是一個核心小組，由志同道合的人士組成，共同目標是把人工智能應用於建築物。不少內地機構已表明，這個構思大有可為，合作空間極大。「機電人工智能實驗室」會進一步加強現有的協作渠道，例如「機電創科網上平台」。這個平台自推出以來，已促成香港及內地的創科解決方案供應商與公營機構的用家建立各種聯繫，惠及各有關方面，成效卓著。

我們已透過線上培訓及交流，為粵港澳大灣區（大灣區）的人才發展獻出一分力。最近的例子莫如為廣州市工貿技師學院學生舉辦有關應用「建築信息模擬－資產管理」系統的線上分享會。機電署根據在2020年與廣州市人力資源和社會保障局簽訂的《深化機電人才發展合作備忘錄》，舉辦是次分享會。

營運基金其實早在2018年已為本港機電業界安排到大灣區探訪的活動。待香港與內地逐步有序恢復人員正常往來（即「通關」）後，我們在大灣區的各種協作活動，必定會為香港年青人帶來新機遇，無論是機電業或其他行業的青青人都會受惠。

### 2022/23 年度工作重點

我們希望繼續進行四個範疇的工作。首先是碳中和，為達成這個目標，我們會為客戶建築物及場地進行各種優化工程，以節省能源及應用更多可再生能源。第二是創科，營運基金會繼續為客戶的機電資產進行數碼化，並協助客戶在日常運作中應用更多創科方案。

第三是擴展我們作為政府技術顧問的職能。營運基金近年無論在進行抗疫工作或應對其他突如其來的挑戰時，都能在極短時間內動員足夠人手、提供所需專業知識和運用各種科技解決問題，工作卓有成效。我們已預留所需資源，並獲得政府支持，繼續發揮所長，執行有關工作。具體來說，我們已調動資源，為私營安老院舍及殘疾人士院舍檢查其通風系統，並會在適當時提供改善建議。

### FURTHER CO-OPERATION WITH MAINLAND

Our co-operation with the Mainland continued in 2021/22. As a “connector”, our main role is to facilitate further economic integration between Hong Kong and the Mainland by leveraging our edge in technology and talent.

A new idea is to set up the “E&M AI Lab”, a collaborative initiative among the EMSD, individuals, entities, industry, academia and research institutions to accelerate the forging of partnerships to support big data and AI development applicable to the E&M facilities in buildings. In essence, the Lab will be a core group, comprised of like-minded people with the common goal of applying AI to buildings. Mainland entities have already indicated that there will be ample room for co-operation in this promising idea. The “E&M AI Lab” will augment existing collaboration platforms, such as our E&M InnoPortal, which was proved effective in connecting I&T solution providers from Hong Kong and the Mainland with users in the public sector, benefitting all concerned.

We have also contributed to talent development in the Guangdong-Hong Kong-Macao Greater Bay Area (the GBA) via online trainings and exchanges. The latest example is an online sharing session on the application of Building Information Modelling-Asset Management (BIM-AM) for students of the Guangzhou Industry and Trade Technician College. The sharing session was organised under a Memorandum of Co-operation on Enhanced E&M Talent Development signed with the Guangzhou Municipal Human Resources and Social Security Bureau in 2020.

In fact, the EMSTF had already organised visits to the GBA for Hong Kong's E&M sector back in 2018. When normal cross-boundary travel with the Mainland resumes, our collaboration with the GBA will undoubtedly provide new opportunities for Hong Kong youth in the E&M sector and beyond.

### PRIORITIES IN 2022/23

We would like to see continuity of work in four areas. First is carbon neutrality, in achieving it, we will conduct various works to help client buildings and venues save energy and use more RE. The second area is I&T, where the EMSTF will continue its efforts to help clients digitalise their E&M assets and apply more technology solutions to their day-to-day operations.

In the third area, we shall expand our role as technical advisor to the Government. The EMSTF has demonstrated its capability in recent years in mobilising sufficient manpower, expertise and technologies at short notice, whether to take on anti-epidemic tasks or deal with other unforeseeable challenges. We have already set aside the necessary resources and obtained the Government's support to continue the role. In particular, we have mobilised our resources to inspect the ventilation systems of private residential care homes for the elderly and disabled and, where appropriate, recommend improvements.

最後一點是固本培元。營運基金必須保持危機感，不斷提升市場競爭力。事實上，營運基金的第二個五年策略計劃會在2022/23年度完結，我們已着手制訂第三個五年策略計劃，並強調增加競爭力。我們很高興見到，實踐第二個五年策略計劃的過程中，團隊變得更團結，機構文化也出現改變，更加善於應用創新科技和隨機應變。營運基金很多同事都非常熱衷參與創科項目及科技比賽，並不限於小部分員工。

當香港與內地恢復「通關」後，我們期望能重新整合機電署與內地的聯繫網絡，並加強在「建築信息模擬－資產管理」等科技領域的交流活動。我們會帶領更多年青人參觀大灣區的機電機構，也歡迎大灣區城市的年青人來港交流。

### 由衷感謝

過去一年，香港雖飽受第五波疫情衝擊，但見到社會大眾仍能團結一致，同舟共濟度過難關，實在令人欣慰。一如以往，我們由衷感謝常務委員會、各決策局和政府部門大力支持，以及各位客戶給予信任和通力合作，我們也誠摯感謝營運基金全體員工竭誠盡心工作，提供優質卓越的服務。

年內，各商會和業界伙伴、專業團體、學者、培訓和研究機構、非政府組織以及所有內地與海外的合作伙伴鼎力襄助，彼此合作無間，謹此致謝。營運基金能持續進步，實有賴市民、傳媒、立法會議員及其他意見領袖的回饋和監察，我們深表謝意。

營運基金看到未來商機無限。憑着大家的支持，我們期望來年再創佳績，成果豐碩。



彭耀雄  
機電工程營運基金總經理

For the final area, we will consolidate our foundation and strengths. The EMSTF must maintain a sense of crisis and continue to enhance its competitiveness in the market. Indeed, as the EMSTF's second Five-year Strategic Plan will come to a close in 2022/23, we have started formulating the third Five-year Strategic Plan, with more emphasis on competitive strengths. It is also gratifying to note that the second Five-year Strategic Plan has made the team more cohesive and fueled a cultural change in the organisation, which has become more I&T-savvy and agile. The EMSTF colleagues are passionate about taking part in I&T projects and technology competitions, an enthusiasm shared not only by a few but many.

We look forward to re-consolidating our network with the Mainland and stepping up exchanges in technology areas such as BIM-AM when normal travel resumes. We shall take more young people to visit E&M entities in the GBA, and welcome youth from the GBA cities to visit Hong Kong for exchanges.

### HEARTFELT APPRECIATION AND GRATITUDE

Over the year, Hong Kong was hard hit by the fifth wave of the epidemic, but we were heartened to see the community stand together to overcome the challenges. As always, we sincerely thank the Executive Board, policy bureaux and government departments for their strong support, and all our clients for their trust and co-operation. Our heartfelt gratitude also goes to all the EMSTF colleagues for their dedicated and excellent services.

We are grateful to the trade associations and partners, professional bodies, academics, training and research institutions, non-governmental organisations and the Mainland and overseas partners for their staunch support and collaboration. Our continuous progress would not have been possible without the vigilance and feedback from the public, the media, members of the Legislative Council and other opinion leaders, and we owe them a big thank you.

The EMSTF sees many new opportunities ahead. With your support, we look forward to another fruitful year.



Pang Yiu-hung  
General Manager, Electrical and Mechanical Services Trading Fund



## 業務回顧與前瞻 Operations Review and Outlook

機電工程營運基金於2021/22年度的業務穩健，並有持續增長。總收入增至87.19億港元，較2020/21年度的85.78億港元增長約1.6%。收入回報率則維持於2.9%的穩定水平，符合我們只收回成本的營運原則，讓客戶保留資金，為公共服務創造最大價值。

### 業務亮點

由於同事工作表現卓越，我們成功與所有服務水平協議於2021/22年度屆滿的客戶（例如教育局、司法機構和廉政公署）續簽新協議。我們也透過參與醫院管理局（醫管局）的公開招標，取得三份重要合約，分別為機電、空調及屋宇裝備系統的操作及維修保養服務合約；醫療儀器以及手術室設備的維修保養服務合約，證明營運基金深具競爭力。

年內，多個新場地陸續投入服務，包括香園圍邊境管制站的共用設施、青衣車輛檢驗綜合大樓和屯門兆麟政府綜合大樓，帶來新業務。未來將有多個新政府場地啟用及基建項目工程展開，例如醫管局的兩個十年醫院發展計劃、政府數據中心大樓和入境事務處新總部大樓等，營運基金的業務也會隨之增長。

### 成績與嘉許

在2021年，為慶祝營運基金成立25周年，我們以「同・創・傳・期」為主題，於2021年8月舉行慶典，並邀得政務司司長蒞臨作主禮嘉賓。是次銀禧紀念是個里程碑，不但突顯營運基金已成功蛻變為具競爭力和高瞻遠矚的優質機電工程服務機構，深受客戶支持，也證明了幾代員工的承擔和努力。

此外，在疫情中，員工的滿意度有所提高，令人感到鼓舞。根據最新的2021年員工滿意度調查，以10分為滿分計，員工滿意度指數為7.6分，回應率為50%，兩者均創歷史新高。自2020年疫情開始，我們動員了很多同事執行額外的緊急工作，例如把普通病房及社區設施改裝為負壓設施，為社區疫苗接種中心和「圍封強檢」行動提供支援等。我們相信由於員工在這些工作中能直接幫助市民，並獲得客戶的讚賞，讓他們獲得不少滿足感。

The Electrical and Mechanical Services Trading Fund recorded healthy business and sustained growth in 2021/22. The total revenue rose to HK\$8,719 million, as compared with HK\$8,578 million in 2020/21, representing an increase of about 1.6%. The return on revenue remained stable at 2.9%, which was in line with our cost recovery principle to help client departments retain funding to optimise value for the public.

### OPERATION HIGHLIGHTS

Thanks to our colleagues' excellent work, we have successfully renewed all existing Service Level Agreements due for expiry in 2021/22, such as those with the Education Bureau, Judiciary and Independent Commission Against Corruption. Through open tender, we also won three substantial contracts of the Hospital Authority (HA) for the provision of operation and maintenance services for electrical, mechanical, air-conditioning and building services systems, as well as maintenance services for medical and operating theatre equipment respectively, demonstrating our competitiveness.

This year also saw the commissioning of many new venues, including the common facilities in Heung Yuen Wai Boundary Control Point, the Tsing Yi Vehicle Examination Complex and the Tuen Mun Siu Lun Government Complex, bringing new business. A multitude of forthcoming new government venues and infrastructure projects will be the source of continuous business growth for the EMSTF, notable examples being the HA's two Ten-year Hospital Development Plans, the Government Data Centre Complex and the new Immigration Headquarters.

### ACHIEVEMENTS AND RECOGNITION

We celebrated the EMSTF's 25th anniversary in 2021 under the theme of "Co-innovate and Co-create Our Future", culminating in a ceremony in August 2021 officiated by the Chief Secretary for Administration. The silver jubilee not only marked a milestone in the EMSTF's success in becoming a competitive, high-quality and forward-looking E&M engineering service provider with strong support from its clients, but also testified to the commitment of generations of the EMSTF colleagues.

It is encouraging to note that staff satisfaction was boosted in the epidemic. In the latest 2021 Staff Satisfaction Survey, we got a staff satisfaction level of 7.6 on a scale of 10, with a 50% response rate, both record highs. Many colleagues have been called upon since 2020 to perform additional urgent duties such as converting general wards and community venues into negative pressure facilities, providing support to Community Vaccination Centres and "restriction-testing declaration" (RTD) operations. We believe these tasks have given staff great job satisfaction as they were directly helping the public while earning clients' appreciation.



張遠芳 太平紳士  
Mr Cheung Yuen-fong, JP

機電工程署副署長 / 營運服務  
Deputy Director/Trading Services, EMSTF



## 業務回顧與前瞻 Operations Review and Outlook

作為政府的「創新促成者」，機電署很高興再次於年內得見部門多個創新科技（創科）項目傳來捷報，獲得多個獎項，尤其於2022年日內瓦國際發明展榮獲19個獎項，包括五個金獎、13個銀獎及一個銅獎，成績斐然。營運基金的區域數碼監控中心及人工智能平台，則於2021年香港資訊及通訊科技獎榮獲金獎。另外，多個營運基金的創科項目也於「促進機械人科技應用」創新比賽及「2021年城市創科大挑戰」中獲得獎項。

我們在培育人才方面的努力也備受肯定，例如機電署的技術員訓練計劃，便榮獲香港管理專業協會2021年最佳管理培訓及發展獎銀獎，以及四個特別獎。

### 從抗疫工作的領悟和得着

在過去兩年的抗疫工作中，我們獲得許多寶貴的領悟和得着。首先是運用創科別具重要性，無論是運用機械人進行清潔與消毒，或是更複雜的解決方案，例如在全港社區疫苗接種中心使用綜合疫苗冷藏櫃監察系統，確保疫苗儲存於適當溫度，都有助抗疫成效。

其次是抗疫工作令營運基金的員工處事變得更靈活敏捷，協作能力也更強。例如我們為官立學校和出現感染羣組的食肆進行通風評估，提出改善建議，並制訂通風指引供營運者參考，同時也為餐飲處所換氣量或空氣淨化設備工作小組提供意見。我們的團隊更支援客戶，把某些政府場地改裝為社區隔離設施及暫託中心。同事在這些抗疫工作中表現高效幹練，充分發揮團隊合作精神，表現卓越。

其三，是營運基金已逐漸成為一個越見靈活的組織，能有效應對各種意想不到的挑戰，這從同事參與抗疫工作的表現可見一斑。在第五波疫情下，雖然很多同事確診2019冠狀病毒病，但團隊仍然無畏無懼，全情投入各種緊迫的抗疫工作，包括繼續進行醫院改裝工作、參與「圍封強檢」行動及執行其他抗疫任務。近年我們銳意為營運基金推動文化轉變，聚焦提高消息透明度和加快溝通，讓同事能在掌握資訊後作出明智決定。從團隊的表現，可見這文化轉變已見成效。

As the Innovation Facilitator of the Government, we are delighted to report again numerous innovation and technology (I&T) awards garnered during the year, most notable being the I&T projects of the Electrical and Mechanical Services Department winning 19 medals, including five gold, 13 silver and one bronze medals, at the International Exhibition of Inventions of Geneva 2022. Our Regional Digital Control Centre and Artificial Intelligence (AI) Platform project won a gold award in the Hong Kong ICT Awards 2021, while various I&T projects of the EMSTF received awards in the "Leading Towards Robotics Technologies" Innovation Competition and the City I&T Grand Challenge 2021.

Our efforts to nurture talent received recognition too. For example, our Technician Training Scheme has won a silver award and four special awards in the Award for Excellence in Training and Development 2021 organised by the Hong Kong Management Association.

### INSIGHTS FROM FIGHTING THE EPIDEMIC

The anti-epidemic work in the past two years has given us valuable insights. First, we grasped the importance of using I&T, be it the deployment of cleaning and disinfection robots or more sophisticated solutions such as the integrated Fridge Monitoring System at all Community Vaccination Centres to ensure that vaccines are stored at the right temperature.

Second, greater agility and collaboration among the EMSTF staff were achieved amid the anti-epidemic work. A good example was our support to the Government on the ventilation assessment at government schools and dine-in restaurants with cluster outbreaks. We recommended improvement measures, helped draw up ventilation guidelines for industry operators, and provided advice to the Working Group on Air Change or Air Purifiers in Catering Premises. Our team also supported the conversion of some government venues into Community Isolation Facilities and holding centres. The efficiency and team spirit of our staff were admirable.

The third insight is that we are becoming an increasingly agile organisation capable of responding effectively to unforeseen challenges, as demonstrated by our colleagues' performance in anti-epidemic work. During the fifth wave when many staff members were infected with Coronavirus Disease 2019 (COVID-19), our team still worked whole-heartedly on urgent improvement works in hospitals, RTD operations and other anti-epidemic tasks, undaunted by the severe epidemic. The team's performance is a sign of success in our cultural change efforts in recent years, with a focus on promoting greater transparency and faster communication to help staff make informed decisions.

### 第二個五年策略計劃快將完成

2021/22年度是營運基金第二個五年策略計劃實施的第四年，計劃旨在透過「機電數碼化」、「培育卓越團隊」和「科技・創新」三大策略，達成「機電2.0」的目的。年內，我們在落實策略計劃方面有良好進展。

亮點之一，是我們五個部別各自的區域數碼監控中心已全面投入運作，為客戶設施提供各種儀器監控、故障警報、故障回應及能源管理服務。下一個目標是把五個監控中心，整合為一個機電署中央數碼監控中心。我們有部分策略業務單位，更已開始把語義人工智能技術應用於建築物，以提升能源效益。目前我們正與廣東省科學技術協會及廣東省生產力促進中心，探討於粵港澳大灣區聯手成立一個「機電人工智能實驗室」，以進一步研發和推廣該技術。

為培育卓越團隊，在疫情期間，我們繼續與廣州的培訓合作伙伴為機電署見習技術員舉辦線上培訓課程。與此同時，為傳承知識經驗與促進交流，營運基金的特定機電團隊和機電署的部門卓越中心，也舉行了多次交流活動，為員工提供特定技術領域的深入培訓。

至於第三個「科技・創新」策略上，從營運基金近年獲得多個著名創科獎項，以及我們正於政府場地測試各種創科項目，可見在這方面已取得豐碩成果。我們致力與客戶攜手合作，協助他們改善多項公共服務，包括為渠務、懲教及海關服務引入智能項目，以至為學校打造智能教室，運用創科方案加強能源效益。在下一個五年策略計劃中，我們會採納更多創科和智能機電方案，特別是在智慧城市發展和減碳工作方面，讓創科能發揮至關重要的效能。

### SECOND FIVE-YEAR STRATEGIC PLAN NEAR COMPLETION

2021/22 was the fourth year of the implementation of the EMSTF's second Five-year Strategic Plan which aims to achieve "E&M 2.0" with the three strategies of "digitisation of E&M assets", "establishing an excellent work team", and "adoption of I&T". Good progress was made during the year.

A highlight is our five Divisional Regional Digital Control Centres (RDCCs) which have become fully operational with functions in equipment monitoring, alarm and fault response and energy management for client facilities. Our next goal is to integrate these RDCCs into an EMSD Departmental Digital Control Centre. Some Strategic Business Units have also started using semantic AI to optimise energy efficiency in buildings. We are working with the Guangdong Provincial Association for Science and Technology and Guangdong Productivity Centre to explore about jointly setting up a "E&M AI Lab" in the Guangdong-Hong Kong-Macao Greater Bay Area to advance and promote the technology.

To build an excellent work team, we have continued to hold online training programmes for technician trainees jointly with our Guangzhou training partners during the epidemic. Meanwhile, to foster knowledge and experience sharing, the EMSTF's Special Duty Units as well as our Departmental Centres of Excellence have organised sharing sessions to provide advanced training to staff in specific disciplines.

The third strategy about adopting I&T has seen fruitful results, as evidenced by the prestigious technology awards won as well as various projects on trial run in government venues. We endeavoured to collaborate with many clients to help improve their public services, ranging from introducing smart initiatives to drainage, correctional and customs services to setting up smart classrooms equipped with I&T solutions to optimise energy efficiency. Adopting more I&T and smart E&M solutions will be our important line in the next Five-year Strategic Plan, especially in the areas of smart city development and decarbonisation, so that we can capitalise on the essential power of I&T.



## 業務回顧與前瞻 Operations Review and Outlook

### 與客戶、機電業界及社會保持聯繫

營運基金十分重視企業社會責任，我們繼續透過研討會、大型會議及互訪活動與客戶及業界保持聯繫。年內，我們也積極在各種公共關係活動中引入機電署兩個吉祥物「機智啤啤」和「智析寶寶」，並增加使用社交媒體，務使我們與各方的溝通更方便快捷和透明。

與社區保持聯繫方面，我們的親善大使為長者及弱勢社羣提供義工服務，而吉祥物也經常到訪幼稚園和小學進行外展活動。我們在2021年11月參與「樂齡科技博覽暨高峰會」，展示如何在安老院舍運用機械人科技，為長者提供更佳的照顧。

### 2022/23 年度展望

展望2022/23年度，我們會充分利用第二個五年策略計劃的最後一年，實現計劃的所有目標，同時開始制訂第三個五年策略計劃，並就此徵求員工的意見。新的策略計劃將於2023/24年度展開。我們有信心，第二個策略計劃可如期完成，並為第三個策略計劃奠定堅實基礎。

在培育人才和應用創科方面，營運基金會加強與內地及海外合作伙伴的協作，並於2022/23年度推出經優化的技術員訓練計劃，為機電署和業界培養更多年輕新血。

總結去年，我們衷心感謝全體同事盡心服務和客戶投以信任。常務委員會與各決策局一如既往，大力支持我們的工作，各商會及業界伙伴、專業團體、大學和學者，以及培訓與研究機構也一直鼎力襄助，我們謹致謝忱。至於本港、內地及海外的合作伙伴，我們也在此誠摯感謝他們一直以來的支持。我們期望疫情結束後與各方加強協作，建立更緊密的聯繫。

### ENGAGING WITH CLIENTS, E&M TRADE AND COMMUNITY

The EMSTF takes its corporate social responsibilities seriously, as seen in our continued engagement with our clients and trade through seminars, symposium and visits. During the year, we also had our two mascots, Witty Bear and KnowBot actively involved in our engagement activities. Social media were used more often to make communication faster, more effective and transparent.

Our community engagement encompassed volunteer services for the elderly and the needy by our ambassadors, and outreach visits by our mascots to kindergartens and primary schools. We participated in the Gerontech and Innovation Expo cum Summit in November 2021 to showcase the adoption of robotics in residential care homes for the elderly for better care of the elderly.

### OUTLOOK FOR 2022/23

In 2022/23, we shall make the most of the final year in the second Five-year Strategic Plan to attain all goals. We shall also begin formulating the third Five-year Strategic Plan, which will commence in 2023/24, and solicit staff input. We are confident that the current Plan will be completed on time, which will lay a solid foundation for the third Plan.

The EMSTF will foster closer collaboration with our partners in the Mainland and overseas on talent development and I&T application. We will start our newly revitalised Technician Training Scheme in 2022/23, with the aim of nurturing young talent for the Department and the industry.

In summing up, we would like to extend our sincere thanks to all our colleagues for their services and our clients for their trust. The Executive Board and policy bureaux have been most supportive, while the trade associations and partners, professional bodies, universities and academics, and training and research institutions have given us staunch support as always. We owe them a debt of gratitude. Heartfelt appreciation also goes to our co-operation partners in Hong Kong, the Mainland and overseas for their continuous support. We look forward to even closer collaboration once the epidemic is over.

本文是我為年報撰寫的最後一篇業務回顧。我十分榮幸有機會在上世紀80年代加入機電署服務，在1996至1998年及2003至2005年期間在營運基金任職，並再於2016年重返營運基金服務至今。多年來，我有幸能在部門協助香港應對各種挑戰，包括非典型肺炎（嚴重急性呼吸道系統綜合症）和2019冠狀病毒病疫情。我也十分感恩能參與香港引進新技術以提升能源效益的工作，例如推動區域供冷、重新校驗和語義人工智能等技術，為香港的減碳轉型略盡綿力。機電署同寅才華出眾，竭誠服務市民，能與大家共事，我深感榮幸。

我們期盼來年所有持份者繼續大力支持我們的工作，營運基金在2022/23年度再創佳績。

This column will be my last for this publication. I have been most privileged in having the opportunity to serve in the EMSD since the 1980s and in the EMSTF in 1996 to 1998 and 2003 to 2005, before re-joining it in 2016. Over the years, my work has taken me to help Hong Kong tackle many challenges including SARS (Severe Acute Respiratory Syndrome) and COVID-19. I am also grateful for having played a role in promoting new technologies such as district cooling, retro-commissioning and semantic AI in Hong Kong for greater energy efficiency and decarbonisation and for working with a talented team committed to public services.

With support from all stakeholders, we look forward to another fruitful year in 2022/23.

張遠芳

張遠芳

機電工程署副署長／營運服務

Cheung Yuen-fong

Cheung Yuen-fong

Deputy Director/Trading Services, EMSD



## 營運服務 Trading Services

### 齊心抗疫

2019冠狀病毒病第五波疫情在2022年年初爆發，確診個案激增，為本港醫療體系和民生帶來前所未遇的挑戰。我們的策略業務單位無懼挑戰，不遺餘力地為醫院管理局（醫管局）加強醫院病房設施，並協助政府迅速設立社區隔離和治療設施，以應急需。與此同時，我們亦全力投入工作，為客戶的場地做好多項不同的防疫措施，支援政府提升疫苗接種率和加強檢測能力，以及為市民提供抗疫物資。

我們的任務之一，是協助醫管局把公立醫院的普通病房改裝成二線負壓隔離病房，包括加裝「流動組合式—高效能空氣微粒子過濾器」及抽氣扇，以應付第五波疫情高峰期每日數以萬計的確診個案所需。我們亦協助醫管局，在亞洲國際博覽館社區治療設施改裝多一個展館，用作收治輕症患者，讓公立醫院可集中照顧病情較重的患者。有關工程與其他四個展館的改裝工程類似，即是在短短一個星期內把展館改裝成為負壓隔離病房，以應對不斷上升的病房需求。

第五波疫情下，本港醫院病床、社區隔離和治療設施均嚴重短缺。為緩解這個問題，中華人民共和國中央政府協助香港特別行政區政府興建六個臨時社區隔離設施，即青衣社區隔離設施、新田社區隔離設施、洪水橋社區隔離設施、港珠澳大橋香港口岸人工島社區隔離設施、粉嶺社區隔離設施及元朗潭尾社區隔離設施，合共提供約18 000張床位。期間，我們應相關決策局和部門要求，提供機電技術意見，包括通風系統的感染控制等。在患者入住社區隔離設施的同時，我們為該六個隔離設施開展機電操作和維修服務，並制訂應變計劃，以應對各種緊急情況。



▲ 機電署在興建社區隔離設施期間提供專業意見，並迅速為多個社區隔離設施內的機電設備提供操作及維修保養服務，確保設施能即時投入服務。圖為位於青衣的社區隔離設施。

The EMSD provided professional advice during the construction of CIFs and promptly offered O&M services for E&M equipment in the CIFs, to ensure that they would be put into operation immediately. Pictures show the CIF in Tsing Yi.

### CONCERTED EFFORTS IN FIGHTING THE EPIDEMIC

The fifth wave of the Coronavirus Disease 2019 (COVID-19) epidemic brought an exponential surge in confirmed cases in early 2022 and posed unprecedented challenges to Hong Kong's healthcare system and people's lives. Rising to the challenge, our Strategic Business Units (SBUs) spared no effort in helping the Hospital Authority (HA) enhance hospital ward facilities and the Government set up community isolation and treatment facilities to meet urgent needs. We also carried out full steam ahead a wide range of anti-epidemic measures for our clients at their venues, supported the Government's efforts in boosting the vaccination rate and the testing capacity and delivered relief supplies to the community.

One of our tasks was to assist the HA in converting general wards in public hospitals into second-tier negative pressure isolation wards, which involved installing more Mobile Modular High Efficiency Particulate Air Filter Units and ventilating fans to meet the needs of tens of thousands of daily confirmed cases during the peak of the fifth wave. We also helped the HA convert an additional hall at the AsiaWorld-Expo Community Treatment Facility for confirmed patients with mild symptoms, allowing public hospitals to focus on caring for the more severe cases. The work, similar to that for the four other existing halls, was to convert the hall into negative pressure isolation wards within one week to meet the ever-increasing demand.

To alleviate the acute shortage of hospital beds and community isolation and treatment facilities under the fifth wave, the Central Government of the People's Republic of China assisted the Government of the Hong Kong Special Administrative Region in building six temporary Community Isolation Facilities (CIFs), namely the CIFs at Tsing Yi, San Tin, Hung Shui Kiu, Hong Kong Boundary Crossing Facilities Island of the Hong Kong-Zhuhai-Macau Bridge, Fanling and Tam Mei in Yuen Long, providing a total of about 18 000 beds. Meanwhile, we provided E&M technical advice including infection control of the ventilation systems to the relevant bureaux and departments as requested. In parallel with the admission of patients to the CIFs, we commenced the E&M operation and maintenance (O&M) services for the six CIFs and developed contingency plans to tackle various emergencies.



營運基金為所有社區隔離設施提供機電技術意見和維修服務，亦為中央政府援建全港規模最大的竹篙灣社區隔離設施提供適當支援及進行改善工程，例如安裝抽氣扇和空氣淨化機等，以便客戶部門提高工作效率及減低感染風險。

為配合落馬洲河套區社區隔離設施的興建工程，我們進行電源隔離和電源分流工作。同時，我們亦為現有啟德郵輪碼頭改建為社區隔離設施及啟德社區隔離設施興建工程提供支援。第五波疫情下，安老院舍亦飽受衝擊，啟德社區隔離設施正是接收安老院舍無症狀確診院友的暫託中心。營運基金團隊在短短數天內為該設施設置負壓病房，加裝空氣過濾器，並分別設立清潔區和污染區。為讓周圍的居民安心，我們亦為設施排出的廢氣進行紫外線處理，以符合世界衛生組織標準。

為設立更多社區隔離設施，我們協助政府把皇后山邨和荔景邨等公共屋邨部分樓宇改裝為適合作社區隔離的設施。為防止本地確診者進入內地，我們提供技術支援，協助衛生署、運輸署及政府產業署，在港珠澳大橋香港口岸設立臨時檢測站，為香港跨境貨車司機及出境旅客施行快速核酸檢測。



The EMSTF provided E&M technical advice and maintenance services for the CIFs. We also provided specific support at the Penny's Bay CIF, the largest isolation facility constructed with support from the Central Government, and carried out improvement works such as installing ventilating fans and air purifiers for client departments to enhance their work efficiency and mitigate the risk of infection.

We carried out power isolation work and diversion of power supply to facilitate the construction of the Lok Ma Chau Loop CIF. Likewise, we supported the conversion of Kai Tak Cruise Terminal building into CIF and the construction of the Kai Tak CIF, which functioned as a holding centre for asymptomatic confirmed patients from residential care homes for the elderly (RCHes), which were among the communities worst hit in this wave. Our EMSTF team set up negative pressure wards, installed extra air filters, and created separate clean and contaminated zones at the facility within a few days. To put the surrounding communities at ease, we also ensured that exhaust air was treated with ultraviolet (UV) to comply with the standards of the World Health Organisation.

To set up more CIFs in the community, we assisted the Government in converting several blocks of public housing estates including Queen's Hill Estate and Lai King Estate into facilities suitable for community isolation. To prevent the local infected persons from crossing the border, we provided technical support to the Department of Health (DH), the Transport Department, and the Government Property Agency to set up temporary testing stations for cross-boundary goods vehicle drivers and outbound travellers at the Hong Kong-Zhuhai-Macao Bridge (Hong Kong Port) to administer rapid nucleic acid tests.

◀▼ 啟德郵輪碼頭於2022年2月改建為社區隔離設施。我們為場地的改建工作提供技術支援，包括在場內鋪設電線及安裝床頭電掣、加裝電熱水爐，以及提供新設廁所和淋浴間所需的機電設備。

The Kai Tak Cruise Terminal was converted into a Community Isolation Facility in February 2022. We provided technical support for the venue setup, including laying cables and installing bedside light switches, adding electric water heaters and providing E&M equipment for new toilet and shower cubicles.





## 營運服務 Trading Services

我們一直致力應用科技協助客戶提升效率，並藉此機會在粉嶺馬適路社區隔離設施試用四足機械人。機械人可載重量達20公斤，並可用四肢輕易上落樓梯、斜坡及在其他地形走動，更能偵測及迴避障礙物，把快速抗原測試包及其他日用品等物資送到隔離房間的門外，減輕員工工作量和降低感染風險。四足機械人深受負責管理該設施的香港警務處歡迎。與此同時，我們在各個社區隔離設施亦廣泛應用傳統機械人，負責消毒及運送物資等工作。

在2022年年初，2019冠狀病毒病確診個案宗數遠遠超出公立醫院負壓病房的供應量，因此當局容許輕症患者（例如只有發燒和咳嗽的患者）居家隔离。有見及此，醫管局在第五波高峰期，把超過20家普通科門診診所改為指定診所，專門診斷和治療這些輕症患者，紓緩他們的徵狀。營運基金提供專業意見，以便進行有關改裝工程。

第五波疫情爆發期間，遺體貯存設施的需求激增，前所未見。衛生署領導跨部門工作小組，在富山公眾殮房和葵涌公眾殮房附近設置冷凍櫃，提供臨時遺體貯存設施。由於兩個公眾殮房附近的戶外地點均缺乏供電設施，營運基金就供電事宜與中華電力有限公司聯絡，並協調安裝臨時供電系統和冷凍櫃的工作。我們亦就改裝冷凍櫃的事宜向衛生署提供意見。兩個臨時貯存設施建成後，合共提供逾4 200個遺體存放格。

Committed to helping clients to enhance efficiency with technologies, we took the opportunity to pilot a quadruped robot at the CIF at Ma Sik Road, Fanling. The robot is capable of carrying up to 20 kilograms of weight and navigating stairs, slopes and other terrains effortlessly with its four limbs. Besides, it can detect and avoid obstacles when delivering supplies, like rapid antigen test kits and other daily necessities, to the door of an isolation room, thus reducing staff workload and infection risk. The robot is much welcomed by the Hong Kong Police Force responsible for manning the facility. Besides that, conventional robots for disinfection and delivery were deployed at various CIFs too.

As confirmed cases of COVID-19 far outnumbered the supply of negative pressure wards at public hospitals in early 2022, patients with mild symptoms such as fever and cough were allowed to quarantine at home. To provide diagnostic and treatment services for these patients to ease their symptoms, the HA set up designated clinics by converting more than 20 general out-patient clinics at the peak of the fifth wave. The EMSTF provided professional advice to support the conversion works.

Amid the fifth wave, there was an unprecedentedly great demand for body storage facilities. The DH led an inter-departmental working group to set up refrigerated containers near the Fu Shan Public Mortuary (FSPM) and the Kwai Chung Public Mortuary (KCPM) to provide temporary body storage facilities. As the outdoor locations near the FSPM and the KCPM lacked power supply, the EMSTF contacted the CLP Power Hong Kong Limited for electricity supply and co-ordinated the installation of a temporary power supply system and freezers. We also advised the DH on how to modify the containers. Upon completion, the two temporary facilities provided over 4 200 storage spaces.



◀▼ 第五波疫情期間，遺體貯存設施的需求激增。機電署聯同其他政府部門加快完成富山公眾殮房重置項目第一期工程(左)，並協助在富山公眾殮房增設臨時遺體貯存設施(右)，提供額外的遺體存放格。

During the fifth wave of the epidemic, there was an enormous demand for body storage facilities. The EMSD worked with other government departments to accelerate the completion of phase one works of the FSPM reprovisioning project (left) and assisted in the installation of temporary body storage facilities (right) at the FSPM to provide additional body storage spaces.



同時，我們協助衛生署和建築署，加快富山公眾殮房重置項目第一期的測試和校驗工作，由原定2022年第三季提前至2022年3月底交付，提早增加約500個遺體存放格。



此外，火化服務的需求亦甚為殷切。自2022年年初開始，所有火葬場已全日24小時運作。我們聯同其他政府部門協助建築署，加快和合石火葬場兩個新火化爐的測試和校驗工作，確保設施可在2022年年初(即提早九個月)投入服務，以便家屬盡早領回先人骨灰，辦理後事。

為遏止病毒傳播，政府動員多個部門在爆疫或懷疑爆疫的屋苑進行「圍封強檢」行動。約200名機電署同事組成團隊，分別在1月23日及26至28日期間到葵涌邨兩幢大廈支援「圍封強檢」行動，逐家逐戶送上膳食。此外，機電署亦積極參與其他屋苑如博康邨和友愛邨等的「圍封強檢」行動。

Meanwhile, we helped the DH and the Architectural Services Department (ArchSD) accelerate the testing and commissioning of phase one of the FSPM reprovisioning project, so that about 500 additional storage spaces were available ahead of the original delivery schedule from the third quarter of 2022 to late March 2022.

◀▼ 為應付第五波疫情下劇增的火化服務需求，我們加快和合石火葬場兩個新火化爐的測試和校驗工作，確保設施可在2022年年初投入服務。

To cope with the sudden surge in demand for cremation services amid the fifth wave of the epidemic, we expedited the testing and commissioning of two new cremators at the Wo Hop Shek Crematorium to ensure that they can commence services in early 2022.



There was an enormous demand for cremation services too. All cremators have operated on a round-the-clock basis since early 2022. Together with other government departments, we helped the ArchSD expedite the testing and commissioning of two new cremators at the Wo Hop Shek Crematorium to ensure that they can commence service in early 2022 (i.e. nine months in advance) for bereaved families to collect the cremated ashes of their loved ones as early as possible for funeral services.

To arrest the spread of the virus, the Government mobilised multiple departments to carry out "restriction-testing declaration" (RTD) operations in housing estates with confirmed or suspected outbreaks. A team of about 200 EMSD colleagues supported the RTD operations by delivering hot meals to every household at two blocks in Kwai Chung Estate on 23 and 26 to 28 January respectively. Similar RTD operations with the EMSD's active involvement also took place at other housing estates, such as Pok Hong Estate and Yau Oi Estate.



## 營運服務 Trading Services



▲► 為確保官立學校的室內空氣流通，我們檢查及保養學校的空調和通風系統，以保障學生和教職員的健康。圖為我們的技術人員到九龍塘官立小學進行通風評估。

To ensure proper indoor ventilation at government schools, we carried out inspection and maintenance of their air-conditioning and ventilation systems to safeguard the health of students and school staff. Pictures show our technical staff conducting ventilation assessments at Kowloon Tong Government Primary School.

一如過去兩年，營運基金繼續協助客戶在不同場地進行通風評估，包括日後在需要時可能用作全民強制檢測中心的場地。就此，我們為政制及內地事務局超過600個場地及教育局轄下65家官立學校進行評估。此外，我們亦協助衛生防護中心制訂有關學校、幼稚園及幼兒中心等教育場所的預防傳染病指引。

繼2020/21年度為指定檢疫酒店計劃下的酒店進行通風系統評估後，我們在2021/22年度繼續為該計劃下70多家指定檢疫酒店進行評估，以確保酒店符合衛生防護中心的通風要求，防止病毒輸入。因應隔離設施的需求不斷增加，我們亦協助食物及衛生局（時稱）評估58家擬轉為社區隔離設施的酒店。我們的團隊就每所隔離酒店的通風系統改善工程提供技術意見，以確保有關系統安裝妥當和操作正常，符合食物及衛生局和衛生防護中心的通風要求。在市政場地方面，我們為94個街市、250個公廁、260個垃圾收集站及161間郵政局，進行新一輪通風檢查和消毒工作，並按需要加裝空氣淨化機。



◀▼ 疫情期間，機電署職員為指定檢疫酒店計劃下的酒店檢查通風系統，以確保酒店範圍空氣流通，減低病毒傳播的風險。  
During the epidemic, the EMSD staff inspected the ventilation systems of hotels under the Designated Quarantine Hotel Scheme to ensure good ventilation in the hotel areas and reduce the risk of virus transmission.



As in the past two years, the EMSTF continued to help clients conduct ventilation assessments in different venues, including those with the potential to be used as the Compulsory Universal Testing Centres in the future if necessary. In this connection, we evaluated more than 600 venues for the Constitutional and Mainland Affairs Bureau and 65 government schools for the Education Bureau. We also assisted the Centre for Health Protection (CHP) in formulating guidelines on the prevention of communicable diseases in educational settings, such as schools, kindergartens and childcare centres.

Further to our work in 2020/21 to assess ventilation systems in hotels enlisted under the Designated Quarantine Hotel Scheme, we continued to assess more than 70 hotels under the Scheme during 2021/22 to ensure they met the CHP's ventilation requirements for preventing the importation of COVID-19 cases. In view of the increasing demand for isolation facilities, we also assisted the then Food and Health Bureau (FHB) in assessing 58 hotels proposed to be converted into the CIFs. Our teams provided technical advice on the modification works to ensure the proper installation and functioning of the ventilation systems in the CIF hotels to meet the ventilation requirements of the FHB and CHP. As to municipal venues, we carried out a new round of ventilation checks and disinfection covering 94 markets, 250 public toilets, 260 refuse collection points and 161 post offices, adding air purifiers where necessary.

至於出現感染羣組的食肆，我們協助衛生防護中心和食物環境衛生署進行通風調查，檢查食肆的換氣量是否達到衛生防護中心所訂每小時最少六次的要求。當衛生防護中心着手調查爆疫的住宅大廈、指定檢疫酒店和安老院舍的傳播源頭時，我們亦提供類似協助。

事實上，機電署作為專責研究安老院舍和殘疾人士院舍通風問題的跨部門工作小組成員之一，亦積極參與制訂即時和長遠的改善措施。

為向長者、行動不便或有特殊需要人士提供疫苗接種服務，政府在2022年4月推出全港「疫苗到戶接種服務」。營運基金協助公務員事務局為該服務作好準備，包括迅速提交車輛設計方案，物色兩輛合適的中型客貨車，並進行全面檢查、翻新、改裝、清潔和測試，同時設置車內供電系統，確保外展隊有足夠電力應付全日冷藏疫苗及即場打印疫苗紀錄的工作所需。這兩項工作對「疫苗到戶接種服務」能否順利進行極為重要。

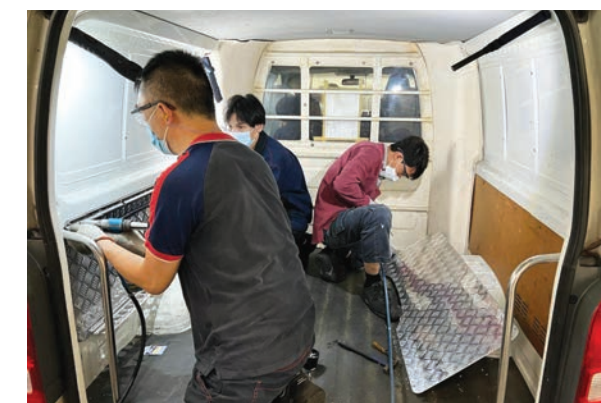
For restaurants with cluster outbreaks, we supported the CHP and the Food and Environmental Hygiene Department in their ventilation investigations by checking whether the restaurants had met the CHP's requirement of having a minimum of six air changes per hour. We also rendered similar support to the CHP for its investigations on the root causes of transmission at various residential blocks, designated quarantine hotels and the RCHes with outbreaks.

Indeed, as a member of the inter-departmental working group looking into ventilation issues at the RCHes and residential care homes for persons with disabilities, the EMSD is heavily involved in the formulation of immediate and longer-term improvement measures.

To provide vaccination to the elderly and persons with impaired mobility or special needs, the Government launched the territory-wide Home Vaccination Service (HVS) in April 2022. To help the Civil Service Bureau prepare for the HVS, the EMSTF promptly put forward the vehicle design proposal, identified two medium vans, carried out comprehensive inspection, refurbishing, modification, cleaning and testing, and set up on-board power supply systems to ensure that the outreach teams will have sufficient power supply for day-long vaccine cooling and on-site printing of vaccination records, both of which are essential to the HVS.



◀▼ 為方便「疫苗到戶接種服務」順利推行，我們迅速把兩輛中型客貨車改裝成為支援接種服務的車輛，並在車廂內設置供電系統和測試其運作。雖然遇上技術困難，我們的團隊在短時間內克服問題，確保供電系統性能穩定，充分展現團隊的專業服務精神。  
To facilitate the launch of the Home Vaccination Service, we rapidly refitted two medium vans into supporting vehicles for the service. We also installed on-board power supply systems and tested their operation. Despite encountering technical difficulties, our team overcame the issues within a short time frame and ensured the stability of the power supply systems, demonstrating the professionalism of our team.





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▼機電署總部大樓採用嶄新的非接觸式升降機按鈕技術。該技術運用內置雷射傳感器，發散角度較小，光束較集中，減少干擾附近輸出的其他光束，因此更精準。裝置具備耗電量低的優點，有助延長該設備的使用壽命。A new touchless lift button technology has been adopted at the EMSD Headquarters. The application of built-in laser sensors with a narrow divergence angle can reduce interference with other nearby output beams and achieve better precision. With the advantage of low power consumption, the device's lifespan can be extended.



▲在第五波疫情爆發期間，我們為中央援港的流動核酸檢測車提供緊急維修服務。儘管該檢測車的車型較獨特，並不常見，但我們的團隊仍能迅速找到故障原因，修好車輛，讓車輛盡快恢復正常服務。

During the fifth wave of the epidemic, we provided emergency repair services for the mobile nucleic acid testing vehicle from the Central Government. The model of the testing vehicle was unfamiliar, but our team was able to identify the defect and repair it quickly, so that the vehicle could resume normal services shortly.

為紓緩香港檢測服務供不應求的壓力，中央政府特別派出一輛流動核酸檢測車赴港相助，我們負責提供緊急維修及支援服務。儘管我們從未接觸過有關車輛型號，但團隊憑着豐富經驗，仍能在有需要時迅速完成維修和測試工作，讓流動檢測車得以在短時間內迅速恢復運作，為市民服務。

To ease the pressure on the city's testing services, the Central Government dispatched a mobile nucleic acid testing vehicle to Hong Kong. One of our tasks was to provide emergency repair and support services for the vehicle. Although we had not come across such vehicle model before, our experienced team quickly completed the repair work and testing where necessary, such that it could resume its services for the public within a short period of time.

在第五波疫情爆發的高峰期間，消防處接獲的緊急召喚個案數目急升，因此增派超過100名員工應對激增的需求。我們協助消防處額外租用40台便攜式無線電接收器，確保其無線電通訊系統保持高度可靠。此外，我們為消防處提供專業服務，優化處長指揮室的空調系統。

During the peak of the fifth wave, the Fire Services Department (FSD) saw a rapid rise in emergency calls and deployed over 100 additional staff to cope with the surge in demand. We helped the FSD hire 40 additional portable radio receivers to ensure that its radio communication system continued to be highly reliable. We also provided professional services for the FSD to upscale the air-conditioning systems of its Director's Command Post.

年內，我們各個策略業務單位繼續全力支援客戶抗疫，例如為全港18區的社區疫苗接種中心提供無間斷的機電支援服務，致力確保綜合疫苗冷藏櫃監察系統運作正常，妥善儲存疫苗；在客戶的辦事處和場地應用更多機械人進行清潔、消毒和偵測發燒等工作；試用各類型的非接觸式升降機按鈕，以備日後在所有政府場地適時推出類似設施；為自動梯扶手進行紫外線消毒；為空氣過濾器 and 通風管道進行日常清潔和消毒，以及採購空氣淨化機等。

Throughout the year, our SBUs continued to render their full support to clients in the fight against the virus. Examples included the provision of ongoing E&M support services for the Community Vaccination Centres across 18 districts and efforts in ensuring the normal operation of the integrated Fridge Monitoring System to provide proper vaccine storage. Our work also covered further deployment of robots for cleaning, disinfection and fever screening at client offices and venues, trial of different types of touchless lift buttons for rollout in all government venues as appropriate in the future, UV disinfection for escalator handrails, and sustained efforts to clean and disinfect air filters and air ducts and procure air purifiers.

我們時刻關注公眾需求。在第五波疫情爆發的高峰期間，大量患者在各大醫院急症室外的露天帳篷內等待入院。有見及此，我們迅速為帳篷內的電暖爐提供臨時電源，為患者送暖解困。

Always mindful of the public needs, our team promptly provided temporary power supply for electrical heaters in tents set up outside the Accident and Emergency Departments of major hospitals, bringing warmth and comfort to numerous patients waiting outdoors for admission into the hospitals at the peak of the fifth wave.

作為政府的「創新促成者」，營運基金已成為客戶舉辦線上研討會活動的支援中心，為各部門在提升資訊科技基建和寬頻方面提供技術支援，並協助客戶使用各種視像會議軟件，包括處理軟件使用許可證等事宜。我們總部的互動學習中心和技能發展中心，內設猶如錄播室的資訊科技設施，已成為客戶舉行線上新聞發布會、線上研討會和虛擬活動的熱門場地。

As an Innovation Facilitator for the Government, the EMSTF has become a support hub for clients' webinar activities, providing technical support to enhance their information technology (IT) infrastructure and bandwidth, and facilitating the use of video conferencing software, including handling licensing issues. Indeed, our Interactive Learning Centre and Skill Development Centre at the Headquarters, with their studio-like IT facilities, have become popular venues for clients' online press conferences, webinars and virtual events.

我們竭誠用心服務市民，並會繼續支援政府和客戶部門，協助香港戰勝疫情。

Committed to serving the public with heart, we will continue to support the Government and clients and help Hong Kong emerge from the epidemic.

►年內，我們協助內部及外部客戶舉辦線上研討會，並提供資訊科技支援。在2021年10月舉行的第二屆綠色創科日便是一例。活動中，香港和東莞會場同步直播線上研討會，方便與會者互動交流，分享實現綠色創科的長遠方案。

We hosted webinars and provided information and technology support to both internal and external clients during the year. One of the examples is the second Green I&T Day held in October 2021. During the event, the webinar was broadcast live in Hong Kong and the Dongguan venues, facilitating interactions and sharing of long-term green innovation and technology (I&T) solutions among participants.



▼疫情嚴峻期間，我們在伊利沙伯醫院外臨時搭建的帳篷內安裝暖燈，為在寒冷天氣下等候入院的患者送暖解困。

During the severe epidemic, we installed heater lamps at temporary tents outside the Queen Elizabeth Hospital, bringing warmth and comfort to patients pending admission to the hospital under cold weather.





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### 在疫情下為良好通風把關 Guardians of Good Ventilation amid the Epidemic

因應第五波疫情爆發期間不少食肆出現羣組感染個案，工程師關皓瑜女士（中）帶領團隊，積極檢查有關食肆的通風系統，為客戶部門提供專業意見及支援。

In response to the clusters of infection cases in many restaurants during the outbreak of the fifth wave of the epidemic, Ms Kwan Ho-yu, Lillian (middle), an engineer and her team actively examined the ventilation systems of related restaurants and provided professional advice and support to client departments.

在疫情下，堂食食肆保持良好通風，對於防控感染至關重要。自2019冠狀病毒病疫情爆發以來，本港多間食肆先後出現羣組感染個案，市政工程師關皓瑜女士及督察陳文德先生，一直積極協助政府調查爆發食肆的通風系統，這方面的工作經驗非常豐富。2021年12月底，又一城某中菜館出現羣組感染個案，引發第五波疫情。關女士及她的團隊當時到場檢查食肆的通風系統，並為衛生防護中心和食物環境衛生署提供技術支援。及後，她與團隊也屢次應相關部門的要求，為多家食肆的通風系統進行調查。

關女士表示：「由於每間食肆的通風設計各有不同，而調查工作都很緊急，我們初時遇到不少困難，例如有時找不到鮮風入口的位置。」因此，隊員之間的合作和默契更顯重要。她十分感激同事不辭勞苦，盡力配合，例如督察同事往往需要爬上高處、較接近天花板的位置，拆除積塵的風喉管蓋，團隊才能量度通風系統每小時的換氣量次數。

陳先生是關女士團隊其中一員，自2020年疫情開始爆發以來，已經多次參與通風系統的調查工作，包括量度每小時的換氣量，檢查鮮風量是否足夠，與食肆負責人聯絡，查詢細節，例如食肆內各區的準確面積和布局等。

他說：「我們與食肆負責人一同合作，嘗試重組食客感染病毒的情況。我們在確診患者的座位進行煙霧測試，模擬病毒傳播一刻最可能出現的空氣流動方向，以便衛生防護中心參考。」

此外，關女士和陳先生曾為食肆和安老院舍制訂通風系統指引，供營運者參考。當這些場所按通風調查結果完成所需的改善工程後，也須徵求團隊的意見及由他們再作評估，方可重新開業。

兩人異口同聲表示：「在疫情下，通風問題，特別是對長者來說，可謂生死攸關！為抗疫工作略盡綿力是我們的本份，我們樂意效勞。」

Maintaining good ventilation in dine-in restaurants is crucial for infection prevention and control amid the epidemic. Since the onset of COVID-19, clusters of infection cases have been detected in a number of restaurants in Hong Kong. Ms Kwan Ho-yu, Lillian, an engineer of the Municipal Sector Division and Mr Chan Man-tak, an inspector of the same division, have actively supported the Government's ventilation investigations at restaurants with COVID-19 outbreaks, thus accumulating abundant experience in this area of work. In late December 2021, a cluster of infection cases at a Chinese restaurant in the Festival Walk triggered the fifth wave of the epidemic. Ms Kwan and her team went to the scene to examine the ventilation system of the restaurant and provided technical support to the Centre for Health Protection (CHP) and the Food and Environmental Hygiene Department. She and her team have subsequently been called upon to investigate the ventilation systems at a number of restaurants.

"As each restaurant was different in its ventilation design and the investigation had to be conducted urgently, we encountered numerous difficulties initially, such as being unable to identify the exact location of the fresh air intake," Ms Kwan said. That means teamwork would be more important than ever. She was really grateful for the staunch support rendered by her team members. For example, her inspectorate colleagues usually had to climb up high near the ceiling to remove dust-covered air vent covers for the team to measure air changes per hour (ACH).

Mr Chan, one of Ms Kwan's team members, has participated in numerous investigations of ventilation systems since the epidemic began in 2020. His work included measuring ACH to ascertain if the amount of fresh air was sufficient, and contacting the persons-in-charge of the restaurant for details such as the exact size and configuration of each section of the restaurants.

"Together with the persons-in-charge, we tried to reconstruct the virus transmission scenarios by conducting smoke tests at the seats of the confirmed patients to simulate the most likely airflow patterns during the virus transmission for the CHP's reference," he said.

Ms Kwan and Mr Chan have also helped draw up ventilation guidelines for restaurants and residential care homes for the elderly for operators' reference. When these venues have completed the requisite improvement works based on the ventilation investigation results, input and re-assessment of the team are required prior to their re-opening.

"Ventilation can be a matter of life and death, especially for the elderly, amid the epidemic. It is our duty to join in the fight against the epidemic. We are delighted to be of help," both said in unison.



### 參與圍封強檢行動 關懷與科技並重 Supporting RTD Operations with Heart and Technologies



2022年3月，機電署統籌及帶領「圍封強檢」行動。這些行動必須有通盤計劃和統籌，並需要資訊科技系統支援及物資管理工作的配合。全賴數碼科技部、企業服務部和其他部別以及各政府部門全力支持，通力合作，展現高度的團隊精神，這些聯合行動方能順利完成。

In March 2022, the EMSD co-ordinated and led "restriction-testing declaration" operations, which entailed overall planning and co-ordination, IT system support and logistics management. Thanks to the staunch support and high esprit de corps displayed by our DTD, Corporate Services Division and other divisions, as well as various government departments, these joint operations were carried out smoothly.

2022年年初，營運基金同事紛紛投入本港抗疫工作的重要一環，參與「圍封強檢」行動，共同經歷不少難忘時刻。當時，數碼科技部高級工程師賴震暉先生和陳斯諾先生，以及物料供應分部總物料供應主任吳嘉碧女士，都參與其中。

團隊的首次「圍封強檢」行動，於3月3日至4日在德朗邨德瑩樓進行。由於在行動前數天才獲通知，吳女士必須與時間競賽，在極短時間內採購充足物資，包括供同事使用的個人防護裝備、快速抗原測試包，以及派發給目標大廈住戶的中成藥包和罐頭食品。吳女士解釋說：「我們通常備存兩套物資，一套供即將展開的『圍封強檢』行動使用，另一套是備用物資，供下次行動使用。」

賴先生和陳先生憶述在行動中的主要工作：「我們第一天逐戶敲門，通知居民到樓下接受核酸檢測；第二天致電檢測結果呈陽性的居民以作跟進，並查核居民的檢測結果，確保只有持陰性檢測結果的居民方可離開受限區域，以及最終在中午前重開受限區域。」在行動中困難重重，包括數據配對工作的挑戰。由於檢測承辦商只有檢測人士的身份證號碼、手機號碼和參考編號，並未掌握他們屬於哪家住戶等關鍵資料，因此負責同事難以跟進陽性個案。幸好機電署團隊運用豐富的資訊科技專業知識，迅速完成數據配對，使跟進工作得以順利進行。

陳先生說：「儘管行動複雜，並需與多個政府部門不熟悉的人員合作，但同事充分發揮團隊合作精神，順利完成各項艱辛工作，令人鼓舞。」

賴先生補充說：「我們非常感激參與同事的體諒包容，以及居民配合我們的工作。」

數碼科技部總工程師李子傑先生於3月9日至10日的友愛邨「圍封強檢」行動擔任現場副指揮官。他說：「在這次行動中，我們特別提醒檢測承辦商，他們從居民取得的資料並不足，難以跟進陽性個案。」承辦商隨即增加居民必須提供的資料項目，使其後進行的「圍封強檢」行動更具效率。

Early 2022 was memorable for many EMSTF colleagues who participated in the "restriction-testing declaration" (RTD) operations, an important element of Hong Kong's fight against the epidemic. Among the participants were Mr Lai Chun-fai, Alex and Mr Chan Sze-nok, Donald, both senior engineers of the Digitalisation and Technology Division (DTD), and Ms Ng Ka-pik, Cindy, the chief supplies officer of the Supplies Sub-division.

As only a few days' notice was given to the team for its first-ever RTD operation conducted at Tak Ying House in Tak Long Estate on 3 and 4 March, Ms Ng had to race against time to procure adequate supplies within a very short period of time. These included personal protective equipment and rapid antigen test kits for colleagues, as well as Chinese medicine packs and canned food for households in the target building. "We always keep two sets of supplies, one for the immediate RTD operation and the other as stand-by for the next one," Ms Ng explained.

Mr Lai and Mr Chan recalled their key tasks in the operation. "On Day One, we knocked on the door of each household to inform the residents to go downstairs for nucleic acid tests; on Day Two, we called those who tested positive by phone for follow-up, checked whether the residents had already obtained a negative test result before allowing them to leave the restricted area, and re-opened the restricted area by noon finally." Many challenges arose in the operation, one of them was data mapping. The testing contractor only had the identity card, mobile phone and reference numbers of those being tested, but did not have the crucial information such as to which households they belonged, thus making it difficult for the responsible colleagues to follow up on the positive cases. Fortunately, the team was able to draw on the rich information technology (IT) expertise of the EMSD to promptly complete the data mapping, so that follow-up action could be carried out smoothly.

"Given the complex and mammoth operation, and the need to work with unfamiliar staff from different departments, we are glad that working with high team spirit, we got all the difficult tasks done," Mr Chan said.

"We are grateful that our colleagues were so accommodating and that the residents were supportive of our work," Mr Lai added.

Mr Lee Che-kit, the chief engineer of the DTD, led the RTD operation at Yau Oi Estate on 9 and 10 March as the deputy field-commander. "In this operation, we alerted the testing contractor that the information they obtained from the residents was insufficient for following up on the positive cases," he said. The insight prompted the contractor to obtain more information required from the residents, making subsequent RTD operations more efficient.



## 營運服務 Trading Services



### 應對空調系統的挑戰 迅速啟動大型治療中心 Rising to the Air-Conditioning Challenge in Activating Large COVID-19 Treatment Centres Promptly

疫情期間，工程師黃達棠先生帶領團隊，支援改裝亞洲國際博覽館新冠治療中心的通風及空調系統。團隊憑着專業知識及豐富經驗，在極急迫的時間內把相關展館改裝成為負壓病房，順利完成任務。

Amid the epidemic, Mr Wong Tat-tong, Victor, an engineer, led his team to support the re-configuration of the ventilation and air-conditioning system at the Treatment Centre for COVID-19 in the AsiaWorld-Expo. Exerting substantive expertise and experience, the team successfully completed the task of converting related halls into negative pressure wards under a very tight schedule.

在這次疫情中，衛生工程部工程師黃達棠先生全情投入大型治療中心的建設。他在2020年8月開始協助醫院管理局（醫管局）及建築署迅速把亞洲國際博覽館（亞博館）四個展館改裝為具負壓環境的社區治療設施，該設施隨即於同年10月啟用。在2022年年初第五波疫情爆發時，黃先生再次臨危受命，憑藉豐富經驗，在極短時間內把亞博館的場地再改裝成為新冠治療中心，作治療大量確診患者之用。

談到亞博館項目的最大挑戰，黃先生表示來自原有的空調系統。該系統是一套具備貯冰功能的熱蓄能系統，設計原意旨在提高能源效益，但只適用於無需全日24小時運作的場地。由於治療中心日夜不停運作，黃先生的團隊必須改裝系統，以提供全天候空調服務。解決方案是加裝製冷機組，並透過增加空氣處理機組的數目改動空調系統。

當第五波疫情爆發時，黃先生再次協助醫管局改裝另一個展館，以及設置亞博館新冠治療中心，以收治症狀輕微的確診患者，讓公立醫院可集中資源照顧重症病人。他憶述當時的情況：「由於要在非常緊迫的時間內裝設百多台空氣淨化機，我們都一起動手，包括為空氣淨化機剪裁尺寸合適的空氣過濾網等，一直工作到深夜。經過多天連夜趕工，我們終於在限期前完成所有改裝工程。」

亞博館空調系統經改裝後運作良好，為整個治療中心提供負壓環境。然而，黃先生很快發現另一個問題，長者一般對冷空氣較為敏感，經常要求調高溫度，而展館的工作人員則因穿着全套個人防護裝備而喜歡較低的溫度。團隊必須平衡各方的需要，不時微調空調系統。

黃先生精益求精，仍不斷力求改進空調系統。「我們希望研發出一個技術方案，只需簡單按一下按鈕，空調系統即可在熱蓄能系統和全天候運作模式之間快速切換，以應對緊急情況所需。」他表示會繼續努力朝着這個目標邁進。

In this epidemic, Mr Wong Tat-tong, Victor, an engineer of the Health Sector Division, has been dedicated to the establishment of large scale treatment centres. Starting from August 2020, he assisted the Hospital Authority (HA) and Architectural Services Department to swiftly convert four exhibition halls at the AsiaWorld-Expo (AWE) into a community treatment facility with a negative pressure environment, which commenced operation subsequently in October the same year. When the fifth wave of the epidemic broke out in early 2022, Mr Wong was tasked with the urgent work of converting the venue at AWE into a Treatment Centre for COVID-19 for treating a large number of confirmed patients.

Talking about the key challenge in the AWE project, Mr Wong said it was the existing air-conditioning system, which ran on a thermal energy storage system with ice storage features, as it was originally designed to maximise energy efficiency at a venue that did not have to operate 24 hours a day. While the Treatment Centre would operate 24 hours a day, Mr Wong's team had to modify the system to provide round-the-clock air-conditioning. The solution was to add chillers, and re-configure the system by increasing the number of air-handling units.

At the outbreak of the fifth wave of the epidemic, Mr Wong helped the HA again in converting another hall in the AWE and setting up the Treatment Centre for COVID-19 for receiving confirmed patients with mild symptoms, so that public hospitals could focus on taking care of severe cases. "Time was really tight, and more than 100 new air purifiers had to be ready," he recalled the situation then. "We all join the hands-on work, including cutting air filters to the right size for the air purifiers late into the night. After several days of overnight work, all conversion works were eventually completed before the deadline."

The re-configured air-conditioning system worked well and created a negative pressure environment for the entire Treatment Centre, but Mr Wong soon noted another complication. While the elderly, who were sensitive to cold air, often asked to raise the temperature setting, staff working in the halls preferred cooler temperatures as they had full personal protective equipment on. It was important to strike a balance among different needs by fine-tuning the system from time to time.

Striving for excellence, Mr Wong always seeks to improve the air-conditioning system. "We hope to develop a technical solution, which will enable the air-conditioning system to quickly switch between running on a thermal energy storage system and operating on a round-the-clock basis for emergencies, just by tapping a button," Mr Wong indicated he would continue to work towards this goal.



### 科技結合人才 開發疫苗冷藏櫃監察系統 Vaccine Fridge Monitoring System Enabled by Technology and Talent

工程師葉煒堂先生及其團隊積極為社區疫苗接種中心的綜合疫苗冷藏櫃監察系統提供無間斷的電源供應，遙距監察冷藏櫃及疫苗的情況。事實證明，他們致力確保疫苗妥善儲存的工作，卓有成效。

To remotely monitor the medical fridges and vaccines, Mr Yip Wai-tong, Wallace, an engineer, and his team have actively provided uninterrupted power supply for the integrated Fridge Monitoring System at the Community Vaccination Centres. Their effort to safeguard the proper storage of vaccines was proved effective.

2019冠狀病毒病疫苗接種計劃（疫苗接種計劃）對本港的抗疫策略至關重要，而營運基金開發的綜合疫苗冷藏櫃監察系統，在疫苗接種計劃中也發揮重要作用。

衛生工程部工程師葉煒堂先生帶領團隊，在2021年初為全港18區所有社區疫苗接種中心（接種中心），設計和安裝綜合疫苗冷藏櫃監察系統。事實證明，該系統可確保2019冠狀病毒病疫苗在適當低溫下妥善儲存。

營運基金應衛生防護中心的緊急要求，開發綜合疫苗冷藏櫃監察系統，以配合政府在同年推出疫苗接種計劃。葉先生曾負責把普通病房改裝成二線負壓病房，以及在公立醫院安裝多台「流動組合式」高效能空氣微粒子過濾器。他運用在這些工作所得的經驗，帶領團隊立即展開行動，進行技術開發工作。團隊在考慮實際情況後，決定使用窄頻物聯網技術，監察接種中心存放疫苗的藥用冷藏櫃。換句話說，系統會使用覆蓋率極高的現有流動電話網絡，進行物聯網操作。此外，團隊也積極採納用戶提出的建議或要求（例如每天早上自動編製一份簡明報告等），改進系統的功能。

綜合疫苗冷藏櫃監察系統的設計，旨在監察冷藏櫃的溫度和接種中心的環境溫度和濕度。同時，系統也可偵測接種中心的冷藏櫃、供電系統和其他機電設備是否有故障。所有數據都會透過物聯網技術和傳感器，傳輸到機電署總部的區域數碼監控中心，以及政府總部的區域數碼監控中心儀表板，以便全日24小時進行監察。當系統偵測到異常情況，會即時發送預警短訊，通知負責人員和相關持份者。

葉先生表示：「我們非常認真處理這些預警通知，一定會安排同事親自致電相關負責人員，以確保他們收到預警訊息。」他與同事也曾數次在凌晨時分趕赴中心現場，親自處理供電問題。

葉先生說：「推行綜合疫苗冷藏櫃監察系統的經驗，讓我們深深體會到『技術儲備』和『人才儲備』兩者必須兼備，方能適時推出創新項目。只要你掌握好專業技術，保持積極態度，就有信心迎接挑戰。」

The COVID-19 Vaccination Programme (CVP) is vital to Hong Kong's anti-epidemic strategy and an integrated Fridge Monitoring System (iFMS) developed by the EMSTF also plays a crucial role in the CVP.

Mr Yip Wai-tong, Wallace, an engineer of the Health Sector Division, led a team to design and install the iFMS at all the Community Vaccination Centres (CVCs) in 18 districts across the territory in early 2021. The system was proved successful in ensuring that COVID-19 vaccines are stored safely at proper low temperature.

The iFMS was developed as urgently requested by the Centre for Health Protection to tie in with the Government's plan to launch the CVP in the same year. Leveraging his experience in converting general wards into second-tier negative pressure wards and installing numerous Mobile Modular High Efficiency Particulate Air Filter Units at public hospitals, Mr Yip led his team to spring into action for the development of the system. After considering the actual circumstances, the team decided to use narrow-band Internet of Things (IoT) technology to monitor medical fridges for vaccine storage in the CVCs. In other words, the IoT would operate on existing mobile networks which had a high coverage already. Some suggestions or requests from users, such as auto-generation of a simple report every morning, were promptly accepted to improve the system.

The iFMS is designed to monitor the fridge temperature and the ambient temperature and humidity at the CVC. Meanwhile, it can also detect faults in the fridge, the power supply system and other E&M equipment at the CVCs. Through IoT technology and sensors, all data are transmitted to the Regional Digital Control Centre (RDCC) at the EMSD Headquarters and the RDCC dashboard at the Central Government Offices for round-the-clock monitoring. If any abnormalities are detected, SMS alert messages will be sent to the responsible officers and stakeholders immediately.

"We take these alerts seriously and always arrange colleagues to call the responsible officers in person to ensure that the messages have been got through," Mr Yip said. He and his colleagues have on several occasions rushed to the centres to personally attend to the supply issues on site after midnight.

"One of the insights gained from the iFMS experience is the importance of having both the 'technology reserve' and 'talent reserve' for the timely deployment of innovative projects," Mr Yip said. "With technical expertise and a positive mindset, one will have the confidence to take on challenges."



## 營運服務 Trading Services

### 開展智慧生活之路

2019冠狀病毒病疫情肆虐，各機構及市民紛紛採用創新科技（創科）減低染疫風險，為本港的智慧城市發展帶來新動力。營運基金也善用創科，致力透過各種智慧生活方案，為客戶提供優質服務，範圍涵蓋公共醫療、運輸、市政設施及都市生活的其他層面。

我們的衛生工程團隊在2022年1月獲醫院管理局（醫管局）批出三份為期五年的合約，包括機電、空調及屋宇裝備系統的操作及維修保養服務、醫療儀器的維修保養服務，以及手術室設備的維修保養服務。

此外，衛生工程團隊也在2021年與食物及衛生局（食衛局）（時稱）就興建中的將軍澳中醫醫院簽訂一份為期四年的服務水平協議。服務範圍包括就機電、空調及屋宇裝備裝置提供操作及維修保養技術諮詢服務；就家具及設備和選定醫療儀器的採購事宜提供技術諮詢服務；以及就選定家具及設備提供項目管理服務。這些服務都旨在確保中醫醫院日後能夠順利運作。該醫院預計可在2025年年中起分階段投入服務。



▲ 年內，我們聯同香港生產力促進局合作研發無線護士呼叫系統，讓病人能在病房內離床使用，取代傳統的護士呼叫系統。此外，職員也可透過系統控制台監察護士呼叫裝置的實時狀態及檢測故障，確保系統有效地運作。During the year, the EMSD and the Hong Kong Productivity Council jointly developed a Wireless Nurse Call System, which allows patients' remote use in the wards, replacing the traditional nurse call system. The staff can also monitor the real-time status and detect faults of the nurse call units through the Nurse Call System Controller for effective operation.

### EMBARKING ON THE SMART LIVING JOURNEY

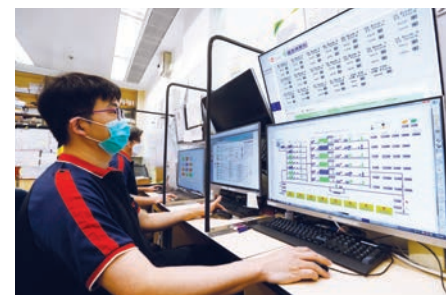
The COVID-19 epidemic has encouraged organisations and the public to use innovation and technology (I&T) to reduce the risk of infection, giving new impetus to the smart city development in Hong Kong. Leveraging I&T, the EMSTF also strived to provide quality services to clients with smart living solutions, covering areas such as public healthcare, transport, municipal facilities and other facets of cosmopolitan living.

In January 2022, our health sector team was awarded three five-year contracts by the Hospital Authority (HA) respectively for the provision of operation and maintenance services for electrical, mechanical, air-conditioning and building services systems; the provision of maintenance services for medical equipment; and the provision of maintenance services for operating theatre equipment.

In 2021, the health sector team also signed a four-year Service Level Agreement with the then Food and Health Bureau (FHB) for the Chinese Medicine Hospital (CMH) under construction in Tseung Kwan O. The scope of works covers the provision of technical advisory services for electrical, mechanical, air-conditioning and building services (EMABS) installations from the operation and maintenance perspectives; technical advisory services for the procurement of furniture and equipment (F&E) items and selected medical equipment; and project management services for selected F&E items. All of these services aim to ensure the smooth operation of the CMH expected to commence service by phases from mid-2025.



▲ 時任行政長官林鄭月娥女士（右三）與時任創新及科技局局長薛永恒先生（左二）在2022年年初就抗疫措施舉行記者會，介紹抗疫科技方案，例如由機電署設計及研發的「流動組合式 — 高效能空氣微粒子過濾器」，以及室外消毒機械人。Mrs Carrie Lam, the then Chief Executive (3rd right), held a press conference on anti-epidemic measures with Mr Alfred Sit, the then Secretary for Innovation and Technology (2nd left), in early 2022 to introduce anti-epidemic technology solutions, such as the Mobile Modular High Efficiency Particulate Air Filter Units designed and developed by the EMSD, and outdoor disinfection robots.



▲► 我們與香港大學攜手合作，利用人工智能技術優化將軍澳醫院的製冷機系統，有效提升系統在運作過程中的能源效益。

We collaborated with the University of Hong Kong to optimise the chiller system at the Tseung Kwan O Hospital with the adoption of artificial intelligence technology, effectively enhancing the energy efficiency of the system during its operation.



作為一所智慧醫院，中醫醫院會採用多個創科方案，例如送貨機械人等。此外，客戶對機電署研發的智能貨倉也深感興趣。事實證明，智能貨倉可提升機電署總部的倉庫運作效率，也獲頒獎項。智能貨倉極具潛力，日後可支援醫院倉庫的日常運作，提升運作效率。

年內，衛生工程的創科項目進展良好。我們專門為醫院設計的無線護士呼叫系統，不但容易使用，並符合其他有關耗電、訊號和電磁的嚴格要求，而且安裝和測試時也不會對病房運作造成重大影響。同時，我們也正在香港兒童醫院的初生嬰兒深切治療部和新生兒特別護理部，測試經改良的嬰兒標籤追蹤系統，以減少警號誤鳴。經改良的系統配合特別為嬰兒設計的小型腕帶，預計可增強裝置的防誘拐效能，醫院也可把保安人員重新調派到其他重要崗位。另外，我們為衛生署及政府化驗所轄下大部分場地安裝的綜合樓宇管理系統快將竣工。該系統可監控各個場地的機電、空調及屋宇裝備設施，並可運用數據分析技術提升這些設施操作的能源效益。此外，我們已運用人工智能技術優化醫管局部分場地（例如將軍澳醫院等）的製冷機組效能。

As a smart hospital, the CMH will come with many I&T features such as delivery robots. The client is also interested in a Smart Warehouse solution developed by the EMSD, which has been proved successful in enhancing the efficiency of its store operation at the Headquarters and won an award for this. The Smart Warehouse has great potential to support the daily operation of the hospital store and enhance its efficiency in the future.

During the year, I&T projects for the health sector made good progress. A Wireless Nurse Call System was purposely designed for hospitals. The easy-to-use system promises easy deployment and negligible impact to the ward operation during its installation and testing, while fulfilling stringent power, signalling and electromagnetic requirements. The test of an improved Baby Tag Tracking System to reduce false alarms was also underway at the Neonatal Intensive Care Unit and the Special Care Baby Unit of the Hong Kong Children's Hospital. The enhanced system with small wristbands especially designed for babies is expected to bring about better abduction prevention results and enable the redeployment of security guards to other priority areas. In a separate development, the integrated Building Management System (iBMS) for most of the major venues under the Department of Health and the Government Laboratory is near completion. It will monitor the EMABS installations at the venues and improve their operational energy efficiency with data analytics. In addition, artificial intelligence (AI) technology was deployed to optimise chillers in some HA venues such as Tseung Kwan O Hospital.



## 營運服務 Trading Services

我們繼續為食衛局領導的兩個十年醫院發展計劃督導委員會提供專業意見。年內，按上述計劃興建的新公立醫院和社區健康中心工程已進入高峰期，而現有醫院的重建及擴建工程也進行得如火如荼。有見及此，營運基金團隊已加緊為各項工程的機電系統提供專業意見，以確保系統的操作和維修保養可保持水準，以及系統在投入服務後保持高度穩定可靠。

行政長官在2021年《施政報告》中提出北部都會區發展策略，預計本港未來對公共醫療服務的需求會不斷增加，勢將為營運基金帶來新機遇。

《香港智慧城市藍圖2.0》(《藍圖2.0》)所載的六個智慧範疇之一，是「智慧出行」。營運基金一直就「智慧出行」項目，為運輸署及其他客戶提供技術支援，例如營運基金協助運輸署採購新一代停車收費錶系統，全港約9 800個現有以八達通運作的收費錶已於2022年1月更換為新一代停車收費錶，並提供多種新功能，所有收費錶已於安裝當日即時投入服務。

We continued to provide professional advice to the Steering Committee on the two Ten-year Hospital Development Plans (HDPs) led by the then FHB. Under the HDPs, the construction of new public hospitals and community health centres reached a peak, as did the redevelopment and expansion of existing hospitals during the year. In view of the above, the EMSTF team stepped up its efforts in providing professional inputs on their E&M systems, with a view to maintaining the operation and maintenance standards, as well as a high level of serviceability and reliability, upon commissioning.

The Northern Metropolis Development Strategy, introduced in the Chief Executive's 2021 Policy Address, is set to open up new opportunities for the EMSTF as the demand for public healthcare is expected to keep on rising in the future.

One of the six smart areas set out in the Smart City Blueprint for Hong Kong 2.0 (Blueprint 2.0) is Smart Mobility, for which the EMSTF has been providing technical support to the Transport Department (TD) and other clients. A good example is the procurement of New Generation of Parking Meter System for the TD. All 9 800 existing Octopus-card-operated parking meters have been replaced by the new-generation of parking meters in January 2022. The new parking meters support multiple new features and have been launched for public use on the date of installation.



◀▼ 我們為香港文化博物館增設智能停車場系統，在停車場入口實時顯示可供泊車的車位數目。圖為我們的員工在車位安裝傳感器，以偵測車位是否已被佔用（左下）。

We have installed the Smart Car Park System at the Hong Kong Heritage Museum for real-time display of available parking spaces at the car park entrance. Picture shows our staff installing a sensor at a parking space to detect whether it is occupied (bottom left).



客戶的智能停車場項目也有長足發展，例如民航處總部的智能停車場系統在2021年年中進行升級工程，增設更多先進功能，包括運用數據分析及裝設一個度身設計的網上平台，讓用戶查閱空置泊車位的實時資訊，以便在網上預訂車位。此外，智能停車場系統設有與保安系統相連的車牌辨識系統、經改良的閉路電視監察系統、手機短訊自動廣播系統，以及智能車輛辨別功能，可辨別不同類型的車輛，例如電動車、政府車輛和電單車等，以便作進一步智能管理。

人羣能夠在建築物內隨意行走，暢順流動，對城市生活極為重要。年內，我們提供多項智能方案及優質服務，以促進建築物內人流暢通。舉例而言，由我們團隊研發的兩套方案「智慧升降機巡查機械人」及「智慧升降機人流分析系統」都極具潛力，可廣泛應用於政府及私人建築物。前者可使升降機的運作更平穩順暢，令乘客更感舒適，後者可運用實時數據分析技術，找出人流較少的升降機及升降機大堂，盡量善用升降機的載客量。



我們在升降機和自動梯的服務備受稱許。在兩位榮獲2021年申訴專員嘉許獎公職人員獎的同事中，有一位是負責處理有關西營盤街市自動梯更換工程的公眾諮詢。該位同事因迅速處理查詢而獲得嘉許。

2021年立法會換屆選舉在去年12月19日舉行，過程涉及大量選民、候選人、政黨、團體及其他持份者。我們受選舉事務處委託，除了為選舉提供慣常的機電服務，包括在全港600多個投票及點票站，安裝及測試照明、機電及電子設備和發燒偵測系統外，在選舉日也應用多個創科方案，務求令選舉順利進行。

Smart car parks for clients also saw exciting developments. For instance, the Smart Car Park System at the Civil Aviation Department Headquarters was upgraded in mid-2021 to incorporate more sophisticated features. Among them are the application of data analytics and the provision of a tailor-made web-based portal for users to obtain real-time information on vacant parking spaces for booking online. The Smart Car Park System is also equipped with a licence-plate recognition system linked with the security system, reinforced closed circuit television monitoring system, an automatic SMS broadcasting system and smart classification of car types such as electric vehicles, government vehicles or motorcycles for more intelligent management.

During the year, we also provided smart solutions and quality services for the smooth flow of people in buildings, which is vital to urban life. For example, both our Robotic Lift Examiner and Smart Lift Passenger Flow Analysis solutions have good potential for wide application in government and private buildings. The former facilitates a more comfortable and smooth lift ride, while the latter uses real-time data analytics to identify less congested lifts and lift lobbies to optimise the utilisation of the carrying capacity of lifts.



◀ 機電工程師李潔珍女士(右)榮獲2021年申訴專員嘉許獎公職人員獎，表揚她勇於承擔，表現卓越。

Ms Lee Kit-chun, Cherry, an electrical and mechanical engineer (right), was awarded the Ombudsman's Award for Officers of Public Organisations in 2021 in recognition of her commitment and outstanding performance.

▲ 2021年年底，我們為立法會換屆選舉提供各項技術支援，例如在超過600個投票站安裝及測試照明、機電和電子設備及發燒偵測系統。

In late 2021, we provided various kinds of technical support to the Legislative Council General Election, including installing and testing the lighting, E&M and electronic equipment and fever screening systems at over 600 polling stations.

Our services on lifts and escalators are much appreciated. Among the two colleagues receiving the Ombudsman's Awards 2021 for Officers of Public Organisations, one was recognised for the prompt action in handling public enquiries on escalator replacement projects at the Sai Ying Pun Market.

In the 2021 Legislative Council General Election held on 19 December 2021, lots of voters, candidates, political parties and groups and other stakeholders were involved. We were commissioned by the Registration and Electoral Office to deploy a number of new I&T solutions for the smooth running of the election, in addition to our usual duties to install and test the lighting, E&M and electronic equipment and fever screening systems at over 600 polling-cum-counting stations across the territory.



## 營運服務 Trading Services

由於各投票及點票站的場地布置及相關設備的安裝工作必須在極短時間內完成，我們研發了一套運用物聯網及流動技術的數碼管理系統，實時監察各投票及點票站的安裝工作進度。我們的緊急應變中心也在2021年12月18日至20日期間運作，透過數碼平台監察各個投票站及點票站的工程進度，並在有需要時立即提供支援服務。另外，由於這是香港首次在選舉日使用電子選民登記冊系統派發選票，我們的團隊也加強監察各個政府數據中心的電力系統，確保其雲端網絡運作穩定。

一如我們在前幾年提到，營運基金肩負落實《藍圖2.0》中八個智慧城市項目的重任。部分項目與市民的日常生活息息相關，例如在新界各郊遊熱點及市中心附近進行有關尋找不設收費錶路旁泊車空位的試驗計劃，以便利私家車、旅遊巴士及殘疾人士泊車；推行智慧廁所試驗計劃以改善公共廁所管理；研發智慧捕鼠系統以控制公共街市的鼠患；以及提供行山安全試驗系統，以追蹤急需救援的遠足人士所在位置。這些項目都運用傳感器和物聯網科技，以改善公共服務和生活質素。

展望未來，多個一直由我們提供技術支援或項目管理服務的智慧城市項目，會繼續試行或落實應用。例如運輸署轄下十個現有多層停車場會在2022/23年度推出停車位指引系統、車輛搜尋系統及無票泊車系統，供駕車人士使用。我們也會繼續支援其他「智慧出行」措施，包括透過「香港出行易」流動應用程式，提供綠色專線小巴的實時到站資訊，以及在全港1 300個有蓋巴士站或政府公共運輸交匯處的電子顯示屏分享專營巴士的實時資訊。無論是運輸、醫療、市政及選舉服務或城市生活的其他層面，這些計劃毫無疑問會為市民的智慧城市生活帶來更豐富的體驗。



As the setup time for the polling-cum-counting stations was tight, the EMSTF developed a digital management system, using the Internet of Things (IoT) and mobile technologies to monitor the installation progress in real time. We also operated a special Emergency Response Centre from 18 to 20 December 2021 to monitor the work progress at all polling-cum-counting stations via digital platforms and to provide immediate support services when necessary. As it was the first time that Hong Kong employed an Electronic Poll Register System to distribute ballot papers on the election day, our team stepped up the monitoring of government data centres' power system to ensure the stable operation of their cloud networks.

As reported in the previous years, the EMSTF has taken on eight Smart City projects from the Blueprint 2.0, some of which are closely related to the daily lives of members of the public. These include the trial scheme for checking vacant non-metered on-street parking spaces near outing hotspots and town centres in the New Territories to facilitate parking for private cars, coaches and the disabled; the Smart Toilet Pilot Programme for better management of public toilets, the Smart Mouse Trap System for rodent control in public markets and the trial Hiker Safety System to track the location of distressed hikers in remote areas. A common thread in these projects is the utilisation of sensors and IoT technologies to improve public services and quality of life.

Looking ahead, many Smart City projects for which we have been providing technical support or project management services will continue to be trialled or deployed for use. For example, the Bay Guidance System, Car Searching System and Ticketless Parking System will be launched for motorists in ten existing multi-storey car parks under the TD in 2022/23. We will also continue to support other Smart Mobility initiatives, such as the provision of real-time green minibus arrival information via the app HKeMobility, and the sharing of real-time information of franchised bus on the display panels in 1 300 covered bus stops or government public transport interchanges. No matter in transport, healthcare, municipal and electoral services or other aspects of the city life, programmes like these will undoubtedly enrich our smart living experiences.



◀ 我們在2021年10月為民眾安全服務隊野外定向比賽提供行山安全系統。該系統利用定位技術及「政府物聯網」追蹤參賽者位置，而他們也可透過智能手錶在緊急情況下發送SOS求救訊號。

In October 2021, we provided a Hiker Safety System for the Orienteering Competition held by the Civil Aid Service. Utilising global positioning technology and the Government-Wide IoT Network, the system can track the locations of participants and allow them to send out SOS signals with their smart watches in case of emergency.



### 善用數碼工具支援立法會選舉 Leveraging Digital Tools to Support the LegCo Election

高級工程師袁偉業先生帶領團隊成員在2021年立法會換屆選舉中應用嶄新的創新科技工具，提升工作效率和成效。縱然他們面對重重壓力，仍竭盡所能，準時完成所有任務，讓選舉順利舉行。

**Mr Yuen Wai-yip, Lobee, a senior engineer, led his team members to deploy new innovation and technology tools in the 2021 LegCo General Election to enhance work efficiency and effectiveness. Despite the immense pressure, they devoted their best efforts and completed all the tasks on time, contributing to the smooth running of the election.**

營運基金一直為立法會選舉提供機電支援，例如為投票站提供電力和照明等，在2021年12月19日舉行的新一屆立法會換屆選舉也不例外。綜合工程部高級工程師袁偉業先生帶領團隊為選舉事務處提供相關支援，並為本港的選舉開啟嶄新的數碼時代。

2021年立法會換屆選舉的籌備工作，在2019年區議會選舉後隨即展開。今次立法會選舉創出多個「第一次」，包括首次利用電子選民登記冊系統在693個投票站派發選票；當中620個投票站在晚上11時轉為點票站後，更首次運用視像錄影系統監察點票過程。在12月18日至20日期間，我們在機電署總部設立緊急應變中心，應用由綜合工程部開發的儀表板，為選舉進行全日24小時監察工作。

該儀表板對監察承辦商在選舉前期的各項準備工作特別有效。由於各承辦商必須透過流動裝置報告所負責工程的進度，儀表板上顯示全港各投票站情況的互動地圖資訊會持續更新，讓袁先生及其團隊可實時檢視各投票站的工程進度。此外，團隊也可利用這個系統隨時檢索承辦商的職責和聯絡資料，以便馬上跟進。由於投票站和承辦商數量龐大，在過往單靠承辦商逐一致電報告進度的時代，難以進行適時且有效的全面監督。

袁先生表示，團隊面對的挑戰莫如需要在極短時間內安裝視像錄影系統，監察點票過程。他說：「由於投票站在晚上10時半才關閉，但點票和視像錄影需要能夠在11時正開始，我們只有30分鐘時間安裝錄影系統。」

袁先生認為，團隊的成功全賴同事於過往選舉累積豐富的工作經驗，管理層又大力支持，而且機電署不同部別超過1 600位同事在選舉當日亦提供各種協助。他說：「選舉事務處對儀表板的印象良佳。我們會繼續優化系統，並計劃在2023年的區議會選舉和2025年下一屆立法會選舉中，再次運用儀表板和其他創新科技工具。」

The EMSTF has always provided E&M support to Legislative Council (LegCo) elections, for example, through the provision of electricity and lighting at polling stations. The latest LegCo General Election held on 19 December 2021 was no exception. Mr Yuen Wai-yip, Lobee, a senior engineer of the General Engineering Services Division (GESD), led his team to provide relevant support to the Registration and Electoral Office (REO) and opened up a new digital era for holding elections in Hong Kong.

Preparations for the 2021 LegCo General Election began soon after the District Council election in 2019. The efforts were translated into several "firsts" in this LegCo election, including the first-ever use of an Electronic Poll Register System to issue ballot papers at 693 polling stations and the adoption of a video recording system to monitor the counting process from 11:00 p.m., when 620 polling stations were converted to counting stations. We also rolled out a GESD-developed dashboard at the Emergency Response Centre in our headquarters for round-the-clock monitoring for the election from 18 to 20 December.

The dashboard was particularly effective in monitoring the works of contractors in the run-up to the election day. As each contractor was required to report the progress of their designated tasks via mobile devices, the dashboard was continually updated, giving Mr Yuen and his team access to a real-time overview of the progress of works at all polling stations as displayed on an interactive map of Hong Kong. The system also enabled them to readily retrieve the information of the responsibilities of contractors and their contact details for prompt follow-up. Given the large number of polling stations and contractors, this timely and efficient oversight was not possible in the past when progress updates solely relied on telephone calls.

Speaking of the challenges which the team faced, Mr Yuen cited the short period of time allowed to set up the video recording system for monitoring the counting process. "As the polling stations closed at 10:30 p.m., we only had 30 minutes to set up the device, so that video recording could begin at 11:00 p.m. sharp when the counting process commenced," he said.

Mr Yuen attributed the team's success to its rich work experience accumulated from previous elections and strong support from the senior management, as well as over 1 600 colleagues from various divisions of the EMSD who rendered assistance on the election day. "The REO was most impressed with the dashboard, which we plan to deploy with other innovation and technology tools in the District Council election in 2023 and the next LegCo election in 2025 after further refinement," he said.



## 營運服務 Trading Services

### 持續支援基建發展

儘管受2019冠狀病毒病疫情影響，香港在2021/22年度繼續奮力推動公共基建發展。營運基金為客戶多個基建項目提供意見和支援，以及機電維修保養服務。我們的服務涵蓋多個範疇，包括道路與航空交通、邊境管制口岸、公共建築物和設施等。我們也參與多項碳中和計劃，包括協助客戶場地節省能源，以及就保障本港的重要基建進行工程，以免基建受惡劣天氣破壞。

年內的亮點之一，是為運輸署完成中環至半山自動扶梯系統的更新工程。更新工程歷時四年，分階段更換全部共19條自動扶梯及自動人行道，最後一期工程預計於2022年4月竣工。中區至半山行人自動扶梯系統是全世界最長的戶外有蓋自動梯系統，既是獨特的行人運輸工具，也是旅遊景點。自動扶梯及自動人行道更新後，具備最新的節能功能及其他環保設計，令自動扶梯系統煥然一新。



◀ 中環至半山自動扶梯系統的更新工程會在2022年4月完成。鑑於自動扶梯每日的客流量高，更新工程在四年內分階段進行，以盡量減低對市民日常生活的影響。The refurbishment of the Central to Mid-Levels Escalator and Walkway System will be completed in April 2022. Considering the high daily patronage of the escalators, the refurbishment work was carried out in phases over four years in order to minimise its impact on the daily lives of the public.

支援道路基建是我們的工作之一，包括為運輸署定期更換隧道/管制區的交通管制及監察系統。我們於2021年協助運輸署為東區海底隧道及青馬管制區的交通管制及監察系統更換工程進行合約招標；亦參與聘請顧問，以支援香港仔隧道、大老山隧道及獅子山隧道的實地勘察、交通、土木工程及結構工程。

提升基建設施的表現也是我們的工作，例如協助路政署解決中環及灣仔繞道若干隧道路段的火警偵測系統在夏天經常預警誤鳴的問題。我們迅速為客戶重新校準隧道內的線式熱力感應控制器，使控制器的設定與環境溫度更為一致，然後進行監察和測試。作出調校後，未有再收到預警誤鳴的報告。

### MAINTAINING MOMENTUM ON INFRASTRUCTURAL SUPPORT

Despite the COVID-19 disruptions, Hong Kong continued to forge ahead with its public infrastructure development programmes in 2021/22, and the EMSTF provided project advice and support as well as E&M maintenance services to clients for numerous infrastructures. Our work covers diverse areas, including road and air transport, boundary control points, and public buildings and facilities. We also play a role in carbon neutrality programmes, including helping client venues save energy, and carrying out works to safeguard the city's critical infrastructures against potential damage brought by adverse weather.

A highlight of the year was the completion of the Central to Mid-Levels Escalator and Walkway System refurbishment project for the Transport Department (TD). The four-year refurbishment project comprised replacement of all 19 escalators and travellers in phases, with the final phase of works planned to be completed in April 2022. Equipped with the latest energy-saving functions and other eco-friendly features, the new escalators and walkways will reinvigorate the unique pedestrian commuter system, which is also the world's longest covered outdoor escalator and a tourist attraction.

Road infrastructural support is another aspect of our work. This includes regular replacement of the Traffic Control and Surveillance Systems (TCSSs) at various tunnels/control areas for the TD. We assisted the client in the contract tendering process for the TCSS replacement projects at Eastern Harbour Crossing and Tsing Ma Control Area during 2021. We also engaged consultants for support in on-site investigation, traffic, civil and structural engineering work at Aberdeen Tunnel, Tate's Cairn Tunnel and Lion Rock Tunnel.

Enhancing the performance of infrastructure facilities is part of our work too. To cite an example, we supported the Highways Department to eliminate frequent false pre-alarms triggered in the fire detection system during summer in certain tunnel sections of the Central-Wan Chai Bypass. We promptly re-calibrated the linear heat detection controller of the tunnel to better align the controller setting with the ambient temperature, and conducted subsequent monitoring and testing. Since then, no false pre-alarms have been reported again.

作為政府的「創新促成者」，我們運用多個創新科技（創科）方案，提升道路和隧道的運作效率，例如在將軍澳隧道試行一套交通分析方案。該方案使用人工智能影像分析演算法，使車輛分類和計算車輛數目高度準確。

另一創科項目於2022年在中環及灣仔繞道進行，我們提供和安裝專為項目設計的物聯網解決方案，利用軟件和硬件配合操作，自動記錄數據、分析隧道風扇的溫度和震動參數。系統配備強力的視像化工具，可於儀表板上顯示各種趨勢和分析概覽，並具有便捷的自動製作報告功能，有助提升隧道運作效率。

多項航空運輸設施也受惠於創科應用。我們在2022年2月為香港海關完成智能運輸機械人試驗計劃。當海關關員在香港國際機場空郵中心辦理貨物清關時，可運用智能機械人抬起及運送重物，盡量減少人手輔助。智能運輸機械人使用光學雷達物體偵測技術和超聲波傳感器，具備「尾隨」功能，能自動跟着前方的人員行走並避開障礙物。

香港國際機場第三條跑道（三跑）現正施工。為支援三跑系統日後的運作，我們協助消防處採購了一系列全新的飛機救援及滅火車，並於2022年年初，派員支援消防處，前往奧地利進行車輛實地測試及驗收工作。



▲ 我們為康城站新公共運輸交匯處的各種機電設施，例如照明系統和通風設備等，提供維修保養服務，確保候車市民更感舒適愉快。

We provided maintenance services for various E&M facilities at the new Public Transport Interchange at LOHAS Park Station, such as the lighting system and ventilation equipment, to ensure a pleasant environment for members of the public queuing up there.

Taking on our role as the Government's Innovation Facilitator, we deploy innovation and technology (I&T) solutions to optimise the efficient use of roads and tunnels. For instance, we made preparation for the trial of a traffic analytics solution in the Tseung Kwan O Tunnel. The solution uses Artificial Intelligence (AI) Video Analytic Algorithm to enable highly accurate vehicle classification and counting.

In another I&T project conducted at the Central-Wan Chai Bypass in 2022, we supplied and installed a tailor-made Internet of Things solution comprising software and devices that work together to automate data logging and analysis of temperature and vibration parameters of tunnel ventilation fans. With powerful visualisation tools which enable trends and profiles to be displayed on a dashboard, as well as time-saving automated report generation function, the solution helps improve tunnel operation efficiency.

I&T applications benefit numerous air transport facilities too. We have completed a trial project on the Smart Porter for the Customs and Excise Department in February 2022. The robot can lift and convey heavy objects with minimum human assistance during cargo customs clearance in the Air Mail Centre at the Hong Kong International Airport (HKIA). Using Light Detection And Ranging (LiDAR) technology and ultrasound sensors, the Smart Porter has a "follow me" feature that enables it to follow a walking officer and automatically avoid obstacles.

To support the future operation of the Three-runway System currently under construction at HKIA, we helped the Fire Services Department (FSD) procure a new fleet of Aircraft Rescue and Firefighting vehicles and supported FSD in on-site testing and acceptance of the vehicles in Austria in early 2022.

▼ 香港海關委託機電署為香港國際機場的空郵中心引入智能運輸機械人。該機械人可在貨物清關時協助抬起及運送重物，並具備「尾隨」功能，能自動跟隨職員行走。

The Customs and Excise Department entrusted the EMSD to introduce a Smart Porter, which can help lift and convey heavy objects during cargo customs clearance at the Air Mail Centre of the Hong Kong International Airport. Equipped with a "follow-me" feature, the Porter can also follow a walking officer automatically.





## 營運服務 Trading Services

▼機電署計劃在2022年稍後時間向業界發出《建築信息模擬－資產管理標準及指引》第三版，以推廣「建築信息模擬－資產管理」系統的應用。

The EMSD planned to issue the Building Information Modelling for Asset Management (BIM-AM) Standards and Guidelines Version 3.0 to the trade later in 2022, so as to promote the application of the BIM-AM system.



近年，營運基金積極推動客戶在其設施的機電維修保養方面，廣泛應用「建築信息模擬－資產管理」技術。在2021/22年度，我們為民航處總部天線場完成資產資料數碼化的工程，並採用「建築信息模擬－資產管理」精簡版來構建資產信息模型。我們會繼續與民航處探討將「建築信息模擬－資產管理」系統及資產數碼化擴展至其總部。

政府建築物及其設施既是本港的城市基建，也是政府賴以提供各項公共服務不可或缺的基礎。我們支援紀律部隊，近月為香港警務處（警務處）完成了兩大項目，其一為西九龍總區最高指揮中心的提升工程。該工程歷時15個月，涉及重整指揮中心的設計、提升數碼網絡基礎設施、整合多媒體管理能力，以及為指揮中心的防衛系統提供一站式控制平台方案。

另一個項目是為警務處採購一批高性能電單車，這些電單車已於2021年10月正式投入服務。新電單車比舊型號的更高效能，更安全可靠，而且設有可調校新型風擋，加速更穩定。新型號電單車亦十分環保，引擎排放標準更高於環境保護署的規定。



▲機電署積極支援西九龍總區最高指揮中心進行系統提升工程，該工程為期15個月。工程竣工後，警務處的指揮和運作效能大大提升。經提升效能的指揮中心於2021年11月舉行啟用典禮。

The EMSD actively supported the Kowloon West Regional Higher Command in its 15-month system renovation project. Upon its completion, the command capability and operational efficiency of the HKPF have been greatly enhanced. The opening ceremony of the renovated Higher Command was held in November 2021.

EMSTF has spearheaded the wider use of Building Information Modelling-Asset Management (BIM-AM) technology in E&M maintenance at client facilities for several years. During 2021/22, we completed the digitalisation of asset information for the antenna farm building of the Civil Aviation Department (CAD) Headquarters, using BIM-AM Lite, which is a simpler version of BIM, to construct asset information models. We will continue to explore with the CAD to extend the BIM-AM system and asset digitalisation to its Headquarters.

Government buildings and their facilities are part of the city's infrastructure, without which the provision of many public services would not be possible. In support of our disciplined forces, we completed two large projects for the Hong Kong Police Force (HKPF) in recent months. One of the projects was the renovation of the Kowloon West Regional Higher Command. The 15-month project covered restructuring the layout of the regional headquarters, upgrading its digital network infrastructure, integrating multimedia management capabilities and providing a one-stop control platform solution for the defence system of the building.

The other project was the procurement of a fleet of high-performance motorcycles for the HKPF. The new motorcycles, which commenced service in October 2021, are more efficient, more reliable and safer than the old models, with stable acceleration and new adjustable windscreens. Came with a higher engine emission standard than that required by the Environmental Protection Department, they are also more eco-friendly.

此外，我們也在極短的時間內為警務處完成了多項迫切的工程，包括為新成立的國家安全處設立有關辦事處及最高指揮中心，該等設施務必在2021年7月1日前投入服務。至於警務處為期三年的保安提升計劃也取得良好進展，並將於2022/23年度完成。我們的工作是為警務處轄下多個場地進行加強保安工程和其他改善措施，包括優化升降機工程及節能計劃等。



▲警務處委託機電署統籌新型電單車的採購工作。與舊型號相比，新型電單車的效能更高，更安全可靠。The EMSD was entrusted by the HKPF to co-ordinate the procurement of new model of motorcycles. Comparing with the old model, the new motorcycles are more efficient, more reliable and safer.



我們於2021/22年度順利承接了兩個新建紀律部隊宿舍的機電維修保養服務，涉及約1 800個居住單位及相關公用地方。我們已計劃於未來五個財政年度，承接另外五個新建紀律部隊宿舍的機電服務，涉及共約1 400個居住單位。

Furthermore, we completed numerous urgent works for the HKPF within a very tight time frame, including setting up the offices and a Higher Command Centre for the newly established National Security Department, which had to be ready for operation by 1 July 2021. We also made good progress for the HKPF's three-year Security Enhancement Programme, which is to be completed in 2022/23. Our role is to implement security enhancements and other improvement measures at Police venues, including lift modernisation works and energy-saving programmes.



▲警務處處長蕭澤頤先生（左）感謝我們為警隊提供高性能的電單車。Mr Siu Chak-ye, Raymond (left), Commissioner of Police, thanked the EMSD for providing high-performance motorcycles to the Force.



◀▲年內，我們接管兩個新紀律部隊宿舍機電設施的維修保養工作。該兩個宿舍即消防處百勝角已婚人員宿舍及粉嶺芬園已婚初級警務人員宿舍。

During the year, we took over the maintenance services for the E&M facilities at two new disciplined services quarters, namely the Fire Services Department Pak Shing Kok Married Quarters and Junior Police Officers Married Quarters at Fan Garden, Fanling.

We smoothly took up the E&M maintenance services of two new disciplined services quarters, which comprise a total of about 1 800 flats with associated communal areas, in 2021/22. We have already scheduled to take up five more new disciplined forces quarters with about 1 400 flats in the coming five fiscal years.



## 營運服務 Trading Services

我們也為警務處承辦創新項目，例如安裝測速器，用以測量被鎖押的電動滑板車和其他電動可移動工具的潛在速度，以檢控違法使用者。該測速器也稱為「電動可移動工具『機•警』速度測試儀」，以自動機械裝置配合機械臂模擬測試人員的四肢，控制電動可移動工具的加速、減速及剎車動作，取代人手測試。由於無需耗費人力資源進行路面測試，因此可降低測速工作的成本並節省時間，也更安全和更高效。

過去一年，我們為政府建築物進行的工作獲得多個本港、區域及國際獎項。舉例一個名為「善用創新技术邁向淨零2050—金鐘道政府合署」的綠色項目，在建築物的水冷式製冷機組採用新一代環保雪種R-514A，把能源消耗量減少約33%。該項目榮獲美國採暖、製冷與空調工程師學會(ASHRAE)香港分會，頒發本地商業建築及現有建築校驗組別2021年科技大獎，並獲得ASHRAE第十三區區域級別大賽亞軍；及後再下一城，於ASHRAE學會級別大賽商業建築及現有建築校驗組別獲得特別嘉許，贏得國際級讚譽。

此外，西九龍政府合署獲得英國特許屋宇裝備工程師學會香港分會頒授2021年度項目大獎(公用建築)。由於我們負責大樓的營運及維修，因此機電署與建築署共同獲得這項殊榮。這幢新建成的大樓採用多項可持續設計元素和嶄新創科技術(例如建築語義人工智能技術)，能源效益表現優異，因而獲得嘉許。

We also undertook innovative projects for the HKPF, for example the installation of a speed tester to help determine the potential speed of impounded electric scooters and a variety of other electric mobility devices (EMD). The testing of EMD is required for prosecution for illegal use of EMD. Namely the Electric Mobility Device Smart Speed Tester, the speed tester is an automatic mechanical installation using robotic arms to simulate a person's limbs in controlling the acceleration, deceleration and braking movements of an EMD, thus substituting manual testing of the EMD's speed. No longer necessary to commit resources to manual testing, using the speed tester reduces costs, saves time and improves safety and efficiency.

Our work for government buildings has won local, regional and global awards over the past year. A good example is a green project namely "Advancing Net Zero 2050 with Innovative Technologies – Queensway Government Offices", which deployed new-generation environment-friendly refrigerant R-514A for the building's water-cooled chillers, saving about 33% of energy consumption. The project won the ASHRAE Hong Kong Chapter Technology Award 2021 on a local level under the Commercial Buildings-Existing Building Commissioning (EBCx) category. It also won second place in the same Technology Award at regional level in ASHRAE Region XIII, while earning an Honourable Mention under the Commercial Buildings-EBCx category of the ASHRAE Technology Award – Society Level, which is a global recognition.

Furthermore, the West Kowloon Government Offices won the CIBSE (Chartered Institution of Building Services Engineers) Hong Kong Awards 2021 – Project of the Year Award – Public Use Buildings. As the operation and maintenance agent for the building, the EMSD received the award jointly with the Architectural Services Department. The new building was recognised for achieving outstanding energy-efficiency performance through the adoption of various sustainable design features and cutting-edge I&T, such as building semantic AI technology.

香港致力於2050年前實現碳中和。為實現此目標，政府成立了氣候變化及碳中和督導委員會，成員包括來自不同政府部門的代表。機電署作為成員之一，成立了小組專門負責協調督導委員會的工作，例如為客戶重要基建的機電裝置抵禦氣候變化的能力進行檢討，以及實施各種應對改善工程，使設施能承受更頻密來襲的超級颱風及其他氣候變化現象。我們還為客戶提供有關重要基建應急和更換計劃的技術意見。

事實上，營運基金一直透過能源審核與碳審計，為客戶場地落實各種能源管理機會，協助客戶減少碳排放。例如，在2022/23年年度末，我們會完成為期三年的審計項目，即為約250幢政府建築物進行能源審核和落實能源管理機會。這是實踐政府於2019年提出的「綠色能源目標」措施之一，目標是以2018/19年度為基準，並在2020/21至2024/25年度期間，跟基準年相若的運作情況下，把能源表現提高6%。

減緩氣候變化和減碳工作並不限於建築物，還涉及營運基金多方面的工作，例如車輛服務。為協助上述督導委員會落實政府政策，在本港推廣使用電動車，我們不斷尋找最節省能源、二氧化碳排放量為零或極低的電動車型號。年內，我們為客戶採購了69輛小型電動車和10輛大型電動轎車，並提供電動車所需的維修保養服務和專業支援。

展望未來，減碳是充滿機遇的重點工作。我們期望能探索新方法，協助客戶和政府應對氣候變化。

Hong Kong aims to achieve carbon neutrality by 2050. Government efforts towards this goal include setting up a Steering Committee on Climate Change and Carbon Neutrality, with representatives from different government departments. As a member, the EMSD has set up a team to co-ordinate our work for the Steering Committee, such as reviewing and implementing measures to enhance the resilience of E&M installations in clients' critical infrastructure (CI) vulnerable to the impact of climate change, including more frequent super typhoons. We also provide technical advice for clients' CI emergency and replacement plans.

Indeed, EMSTF has long been helping clients to decarbonise by conducting energy audits and carbon audits and by implementing measures to realise various energy management opportunities (EMOs) at their venues. By the end of 2022/23, for example, we will have completed a three-year programme to carry out audits and implement measures to realise EMOs for about 250 government buildings. It is part of the Government's effort to meet the "Green Energy Target" promulgated in 2019 to improve its energy performance by 6% from 2020/21 to 2024/25, under comparable operating conditions in 2018/19 as the baseline.

Climate change mitigation and decarbonisation work are not limited to buildings, but also involve many aspects of the EMSTF services, such as services related to vehicles. To assist the Steering Committee in its support for the Government's policy to promote the use of electric vehicles (EVs) in Hong Kong, we are always on the lookout for the most fuel-efficient EV models with zero or low carbon emissions. During the year, we procured for clients 69 small EVs and 10 large EV saloons and also provided the necessary EV maintenance services and professional support.

Looking ahead, decarbonation is an exciting area of work, and we look forward to exploring new ways to help clients and the Government combat climate change.

▼► 我們一直協助客戶部門搜羅及採購新款車輛，並提供專業的技術支援服務。(左) 零碳排放的新電動車有助改善路邊空氣質素。(右) 低地台垃圾收集車方便司機上落車，減輕勞損風險，該車輛加大的擋風玻璃也可擴闊司機視野，加強駕駛安全。

We have been assisting client departments in sourcing and procuring new vehicles and providing professional technical support services. (Left) The new electric vehicle with zero carbon emission can improve roadside air quality. (Right) The low-entry driver cab type refuse collection vehicle allows drivers to get on and off the vehicle easily, reducing the risk of strain injury. Its enlarged windshield also provides the driver with a wider vision for better driving safety.



▲ 機電署、香港綠色建築議會和冷水機組設備供應商憑藉金鐘道政府合署冷水機組更換項目參與美國採暖、製冷與空調工程師學會2021年科技大獎，榮獲香港分會冠軍及區域級別(包括九個亞洲國家/地區)亞軍，以及獲學會級別(全球性)的特別嘉許。金鐘道政府合署是首幢政府大樓採用全球暖化潛能較低的雪種，此項舉措可大幅減少溫室氣體排放及節省耗電量。

The EMSD, the Hong Kong Green Building Council, and the supplier of chiller equipment were awarded the ASHRAE Technology Award 2021, including Hong Kong Chapter – First Place Winner and Regional Level (involve nine Asian countries/regions) – Second Place Winner; and Society Level (global) – Honourable Mention, for the Queensway Government Offices (QGO) chillers replacement project. The QGO was the first government building to use a refrigerant with low global warming potential, which can greatly reduce greenhouse gas emissions and energy consumption.



## 營運服務 Trading Services



### 翻新世界級自動扶梯 以民為本休戚與共 Refurbishing World-class Escalator with a Big Heart

在更新工程期間，工程師何振滔先生致力與市民大眾保持良好溝通。他耐心解答市民查詢，嚴謹監察及跟進工程進度，務求盡量減低工程對市民日常生活造成的影響。

**During the refurbishment works, Mr Ho Chun-to, James, an engineer, was committed to maintaining good communication with members of the public. He handled public enquiries with patience and closely monitored and followed up on the works progress, with a view to minimising the impact on the daily lives of the public.**

中環至半山自動扶梯系統（扶梯系統）全長800米，是全球最長的戶外有蓋自動梯。在2018年，扶梯系統進行更新工程。由於當時扶梯系統的全數19條自動扶梯和自動行人道均已超過其使用年期，故必須全部更換。更新工程為期四年，分11個階段進行，預期於2022年4月竣工，屆時扶梯系統會全面重新開放予公眾使用。

邊境及運輸工程部工程師何振滔先生於2020年1月加入負責扶梯系統更新工程的團隊，其時工程已進行了兩年。何先生與團隊就進行工程，積極與是次項目的客戶部門運輸署，以及民政事務總署、香港警務處等其他政府部門協調，以應對各種挑戰。例如工程團體須確保工程不會影響扶梯系統現有上蓋。此外，由於扶梯系統沿途的街道相當狹窄，團隊既要安排貨車吊機進行吊運工作，又要盡量避免阻礙交通和行人，增加了工程的難度。另外，項目還需要獲得區內社羣的支持，包括有不同文化背景各類居民與商戶等。

為使項目能順利進行，團隊每天在相關路段封路一小時進行更換工程，務求減輕交通方面的影響。有一次，有病重長者乘車前往求醫因封路不能通過，另一次有車輛載着情況危急的寵物經過相關路段時受阻。基於市民的緊急需求，團隊兩次都立即重開路段放行。此外，在2021年年初，渠務署臨時要求緊急進入封路路段的一個沙井，採集地下污水樣本，以進行新冠病毒檢測，工程人員亦即時配合，安排讓該署人員進入。何先生表示：「從這些例子可見項目團隊靈活應變，面對各種特殊情況善於適應變通，以關愛精神照顧市民和社區所需。」

由於團隊規劃周詳，而且辛勤工作，因臨時開路而損失的時間，並未使工程有重大延誤。何先生更表示透過這個項目累積了不少處理公眾查詢和投訴的經驗，處事變得更有耐力，應付未來類似的挑戰游刃有餘。回顧落實項目的過程，他非常感謝團隊的支持和社區的包容。

The 800-metre Central to Mid-Levels Escalator and Walkway System (the System) is the longest covered outdoor escalator in the world. In 2018, the System underwent refurbishment works. As the service life of all the 19 escalators and walkways of the System had been expired then, all of them had to be replaced. The four-year refurbishment works were carried out in 11 phases. It is expected that all the works will be completed and the System fully re-opened by April 2022 for public use.

Two years into the project, Mr Ho Chun-to, James, an engineer of the Boundary Crossing Facilities and Transport Services Division, joined the team responsible for the refurbishment of the System in January 2020. Mr Ho and the team actively co-ordinated with the Transport Department, the project client, as well as other government departments, including the Home Affairs Department and Hong Kong Police Force, to tackle myriad challenges. For example, the team had to ensure that the works will not affect the existing canopies of the System. Moreover, the narrow streets along the System added difficulties to the works, as truck-mounted cranes needed to be deployed for lifting operations while disruption to vehicle and pedestrian traffic had to be minimised. In addition, the team had to solicit support from the local community, composing of different residents and commercial tenants with diverse cultural background.

To facilitate smooth implementation of the project, the team adopted the approach of closing relevant road sections for an hour every day for replacement works, with an aim to minimising the traffic impacts. On one occasion, a seriously ill elderly person on a car going to seek medical treatment could not continue the way due to the road closure; on another occasion, a car carrying a pet in critical condition was obstructed. On both occasions, the team immediately re-opened the closed road section to cater for the urgent need. In another instance in early 2021, when the Drainage Services Department put in a last-minute request for urgent access to a manhole in a closed road section to take underground sewage samples for COVID-19 testing, our staff also made arrangements at once to allow the officers concerned to enter the area. "These examples show our flexibility and adaptability in various situations with caring attitude with regard to the needs of the community," Mr Ho said.

With careful planning and hard work, the time lost for temporary road re-opening did not cause any major delay in the project. Mr Ho also said that working on the project, he gained much experience in handling public enquiries and complaints, and has become more patient, enabling him to overcome similar challenges with ease in the future. Looking back at the implementation of the project, he would like to thank his team for their support and the community for its forbearance.



### 不一樣的旅程： 遠赴奧地利測試飛機救援及滅火車 An Unusual Trip: Flying to Austria for Testing Aircraft Rescue and Firefighting Vehicles

黃宇康先生（右二）及其團隊於2022年年初遠赴奧地利，協助消防處進行飛機救援及滅火車的測試及校驗工作。旅程期間障礙重重，當地天氣惡劣，而且受疫情影響，團隊的行程被打亂，儘管如此，團隊仍排除萬難，確保車輛如期交付。

**Mr Wong Yu-hong, Simon (2nd right) and his team flew to Austria in early 2022 to support the FSD in testing and commissioning the ARFF vehicles. The trip was full of obstacles with severe weather in Austria and disruptions to the team's itinerary due to the epidemic. Nevertheless, the team managed to overcome all difficulties and ensured that the vehicles were delivered on time.**

香港國際機場第三條跑道將配備一支擁有14輛先進飛機救援及滅火車的全新救援車隊。保安及車輛工程部工程師黃宇康先生負責採購有關車輛，他具備豐富的車輛採購經驗，是次採購的各個階段，由招標至測試和校驗新車隊，他都全力參與。

由於所採購的部分飛機救援及滅火車在奧地利林茨市生產，該些車輛的設備檢查和性能現場測試需在當地進行，以便即場查找問題並安排迅速修正問題。有見及此，黃先生率領三名機電署同事，聯同消防處代表組成團隊，前往林茨市測試並接收其中九輛新車。

團隊於2022年1月在嚴冬中抵達位於林茨市的車廠。他們在當地逗留了共22天，並分成兩組工作，每組有兩名機電署和兩名消防處同事。

黃先生說：「廠方在附近租了一個小型飛行區，讓我們進行駕駛性能測試。我們在飛行區工作了整整兩天，當時氣溫僅為攝氏零下五度左右，還不時下雪，地面結霜。」車輛測試一般不會在歐洲冬季進行，但由於該批飛機救援及滅火車必須在2022年5月前付運到港，以預留充足時間在第三條跑道於7月開通前，在香港國際機場進行最後測試，因此作出這個特別安排。

這次行程的另一個挑戰是香港為應對新冠疫情而實施的嚴格入境航班管控措施。黃先生憶述：「就在旅程即將結束之際，我們在維也納機場的登機閘口被截停，並獲告知回港航班須熔断14天。」幸而團隊得到在香港的機電署同事協助安排，在滯留兩天後終於離開奧地利。團隊抵港後隨即接受14天酒店隔離。

這次不平凡的旅程給黃先生帶來新領悟。整個海外行程的策劃及執行固然困難重重，而最後航班熔断更為旅程增添挑戰。儘管如此，團隊面對困難及危機時仍表現冷靜和專業，他為此感到欣慰。這次旅程也讓他從飛機救援及滅火技術方面擴闊眼界。他現正與消防處探索使用混能或電動車作為消防和救援車輛是否可行。

A new fleet of 14 advanced Aircraft Rescue and Firefighting (ARFF) vehicles will be deployed at the third runway of the Hong Kong International Airport (HKIA). Mr Wong Yu-hong, Simon, an engineer in the Security and Vehicle Services Division, was responsible for the procurement of the relevant vehicles. Experienced in vehicle procurement, he participated in every stage of the procurement exercise, from tendering to testing and commissioning of the new fleet.

Since some of the ARFF vehicles procured were manufactured in Linz, Austria, equipment checks and on-site performance tests had to be conducted there for the identification of any defects and prompt rectification. In view of this, Mr Wong led three colleagues from the EMSD to form a team with the representatives of the Fire Services Department (FSD), to fly to Linz for testing and receiving nine of the new vehicles.

The team arrived at the production plant in Linz in January 2022, in the depths of the Austrian winter. They stayed for a total of 22 days, working in two groups, each with two EMSD and two FSD colleagues.

"The plant rented a small airfield nearby for us to conduct the driving performance tests. We spent two full days working at the airfield under the temperatures of about -5°C, with snow and ground frost from time to time," Mr Wong said. Testing of vehicles is usually avoided in European winters. Nevertheless, as the ARFF vehicles needed to be delivered to Hong Kong by May 2022, in order to allow sufficient time for final testing at HKIA before the third runway opened in July.

Another challenge during the trip was the strict inbound flight control measures implemented in Hong Kong in response to the epidemic. "As the trip was drawing to the end, we were stopped at the boarding gate at Vienna Airport and were told that flights to Hong Kong had been suspended for 14 days," Mr Wong recalled. Fortunately, with the help of EMSD colleagues in Hong Kong, the team finally left Austria after being stranded for two days. Upon arrival in Hong Kong, the team immediately underwent 14 days of hotel quarantine.

From this unusual trip, Mr Wong has drawn insights. The planning and execution of the entire overseas trip was undoubtedly difficult and the flight suspension in the end posed further challenges to the trip. Nevertheless, he was grateful that the team had been calm and professional in the face of difficulties and crises. The trip also broadened his horizons in ARFF technologies, and he is now exploring with the FSD the potential of using hybrid or electric vehicles as firefighting and rescue vehicles.



## 營運服務 Trading Services

### 應用智能方案提升客戶的運作

創新科技(創科)對營運基金極為重要，我們借助各種創科方案，提升客戶的運作，使之變得更具智慧效能和效益。我們大部分的工程服務都已採用各種創科和數碼化工具。這些方案可加快智慧城市及基建發展的步伐，成效有目共睹，更可提升客戶後勤運作的效率和可持續性。

去年11月，我們榮獲2021建造業議會數碼化大獎機構類別(客戶)金獎，表揚我們致力應用嶄新科技和數碼化工具，提升客戶的運作。獲獎給予我們莫大鼓勵，也肯定我們與客戶、業界、本港和內地的策略伙伴及其他持份者攜手踏上數碼化之旅，共同開發，共同創造的努力成果。

年內，我們也獲得多個其他本地獎項，例如我們的「智慧城市管理－區域數碼監控中心和人工智能平台」項目，在2021年香港資訊及通訊科技獎的商業方案(大數據及開放數據應用)組別中榮獲金獎。另一個為長者及殘疾人士開發的人工智能升降機監察系統項目，也在創新科技署主辦的「2021年城市創科大挑戰」中贏得創新獎。房屋署等潛在客戶對這個升降機監察項目感興趣，並參與測試應用。



▲我們在2021年香港資訊及通訊科技獎的商業方案(大數據及開放數據應用)組別中榮獲金獎，以表揚機電署在推動資訊及通訊科技發展所付出的努力。We were granted the Smart Business (Big Data and Open Data Applications) Gold Award in the Hong Kong ICT Awards 2021 in recognition of the EMSD's efforts in promoting ICT development.

### ENHANCING OPERATIONS OF OUR CLIENTS WITH SMART SOLUTIONS

Innovation and technology (I&T) are vital for the EMSTF to make the operations of our clients smarter and more efficient. Various I&T and digitalisation tools have now permeated most aspects of our engineering services. Not only can they provide solutions to expedite smart city and infrastructure developments with notable results, but they also enhance the efficiency and sustainability of the back-end operations of our clients.

In recognition of our commitment to improving the operations of our clients with the adoption of new technologies and digitalisation tools, we received the Gold Award in the Organisation (Client) category of the Construction Digitalisation Award 2021 of the Construction Industry Council (CIC) last November. The award is a great encouragement to us and a recognition of our achievement since we embarked on our digitalisation journey in collaboration with our clients, the trade, strategic partners and other stakeholders in Hong Kong and the Mainland.

During the year, we also won a number of other local awards, such as the Smart Business (Big Data and Open Data Applications) Gold Award in the Hong Kong ICT (Information and Communications Technology) Awards 2021 for our project of "Smart City Management – Regional Digital Control Centre and Artificial Intelligence (AI) Platform". Another project, AI lift monitoring system developed for the elderly and persons with disabilities, won the Innovation Award in the City I&T Grand Challenge 2021 organised by the Innovation and Technology Commission. The potential clients such as the Housing Department was interested in the lift monitoring project and participated in testing the application.



▲機電署致力為客戶應用嶄新科技和數碼化工具，為我們贏得2021建造業議會數碼化大獎機構類別(客戶)金獎。

The EMSD won the Gold Award at the CIC Construction Digitalisation Award 2021 in the category of Organisation (Client) for the adoption of new technologies and digitalisation tools for our clients.

機電署的創科實力非凡，再次揚威海外。機電署繼2021年在日內瓦國際發明展榮獲八個獎項後，於2022年再次在同一賽事贏得19個獎項，包括五個金獎，得獎項目分別為「智能升降機移動監測裝置」、「智能數碼自動梯監測系統」、「智慧升降機巡查機械人」、「智能鍋爐維護機械人」及「司機隨身寶」。此外，我們贏得13個銀獎和一個銅獎，表揚我們為清潔、消毒和培訓工作等開發的各種機械人項目；用於監測和分析架空纜車、鐵路軌道、升降機人流、地下公共設施、火化流程、消防員健康和懲教院所在囚人士狀況等的各種系統；以及可優化太陽能發電量和性能等的項目，不勝枚舉。

一如預期，機械人技術在客戶運作上扮演的角色愈來愈重要。年內，營運基金的項目於2021年7月在政府資訊科技總監辦公室舉辦的「促進機械人科技應用」創新比賽中，榮獲大獎、二獎及三項優異獎。「探索運用機器人技術執行及提升清潔廁所馬桶的智能公共服務」項目勇奪大獎，而「人工智能和機器人技術在智能倉庫中的應用」項目則贏得二獎。

我們的區域數碼監控中心和人工智能平台，現已覆蓋衛生署和政府化驗所轄下大部分主要場地，以及醫院管理局(醫管局)一些重要的機電系統。此外，我們更廣泛應用人工智能，例如與香港大學合作，利用人工智能和大數據分析技術作為數據挖掘的演算法，為醫管局制订混合型預測運作監控策略，以優化將軍澳醫院、瑪麗醫院和醫管局總部的製冷機組性能。至於醫院的重要機電設施，例如淡水冷卻塔等，我們已透過區域數碼監控中心實時監察其操作表現，以盡量減低退伍軍人病的傳播風險。

▼機電署再放光芒，揚威海外，在2022年日內瓦國際發明展勇奪五項金獎、13項銀獎及一項銅獎，合共19個獎項。

The EMSD won international acclaim with a total of 19 awards, including five golds, 13 silvers and one bronze in the International Exhibition of Inventions of Geneva 2022, shining once again across the globe.



Winning 19 medals at the International Exhibition of Inventions of Geneva 2022 after winning eight in the same event in 2021, the EMSD once again proved its I&T strengths on a global level. We won five gold medals for an Intelligent Elevator Movement Surveillance Device, an Intelligent Digital Escalator Monitoring System, a Robotic Lift Examiner, a Smart Boiler Servicing Robot and a Smart Driver Assistant for the Automated People Mover. We also brought home 13 silver medals and one bronze medal in recognition of our projects for a variety of robots for cleaning, disinfection and training; diverse monitoring and analytics systems for aerial ropeways, railway tracks, lift passenger flow, underground utilities, cremation, the health of firefighters, and the wellbeing of persons in custody (PICs) in correctional institutions; and tools for optimising solar energy generation and its performance, to name a few.

As expected, robotics plays an increasingly important role in the operations of our clients. During the year, the EMSTF projects won the grand award, the first runner-up and three merit awards in the "Leading Towards Robotics Technologies" Innovation Competition of the Office of the Government Chief Information Officer in July 2021. The grand award went to the Robotics-enabled Public Services on Toilet Bowl Cleaning Application and the first runner-up award was garnered by the Application of Artificial Intelligence and Robotics Technologies for Smart Warehouse.

Our Regional Digital Control Centres (RDCCs) and AI platform have now covered most of the major venues under the Department of Health and the Government Laboratory and some critical E&M systems in the Hospital Authority (HA). AI has been put into wider use too. An example is our joint project with the University of Hong Kong, which employed AI as the data mining algorithm with big data analysis in formulating a hybrid predictive operational control strategy for the HA to optimise the performance of chiller plants at Tseung Kwan O Hospital, Queen Mary Hospital and HA Headquarters. As for the critical E&M facilities such as fresh water cooling towers in hospitals, we have monitored their operational performance in real time through the RDCCs to minimise the risk of the legionnaire's disease.



▲機電署團隊在2021年7月獲頒「促進機械人科技應用」創新比賽大獎，得獎項目為「探索運用機器人技術執行及提升清潔廁所馬桶的智能公共服務」。該比賽旨在把機械人技術與公共服務接軌。

In July 2021, the EMSD team was presented with the grand award for the Robotics-enabled Public Services on Toilet Bowl Cleaning Application in the "Leading Towards Robotics Technologies" Innovation Competition, which aims to connect public services with the adoption of robotics technologies.



## 營運服務 Trading Services

我們在公眾街市也使用各種人工智能監測系統，包括具備人工智能和攝錄機的自動梯監察系統，監察承辦商的維修保養工作。

過往，人工智能並未能識別自動梯乘客在梯上跌倒的真正原因，但這項功能對我們制訂適當的改善措施十分重要。為解決這個問題，同事提出創新構思，聘用特技演員，模仿乘客在自動梯上因暈倒、不適、設備故障或其他原因而跌倒的動作，並攝錄這些動作，然後把錄像輸入人工智能系統的機器學習模型，藉此提升人工智能系統的分析能力。經改善的人工智能自動梯監察系統已在黃大仙大成街街市試用，效果良好。



此外，創科可支援文化場地的運作。以香港海防博物館為例，營運基金近年與香港城市大學合作開發智能電掣房，使用傳感器和遙距監測技術，收集電掣房狀況的數據，以改善維修保養工作。我們的最終目標，是開發一套資產健康指數系統，以評估該博物館各電氣裝置的狀況。

在現今的數碼年代，客戶對支援藝術及文化活動的「藝術科技」需求不斷增加。我們的團隊正積極接受有關舞台電腦燈光運作的培訓，為即將啟用的東九文化中心作好準備。至於康樂及文化事務署轄下的虛擬電競場地，我們已為該署的「運動科技」試點項目提供支援，日後該署或會委託我們承辦相關的維修保養業務。為監察各市政、康樂及文化場地承辦商的工作表現，我們由2021年7月開始試用名為「Hearts」的流動應用程式，目標是在全港18區的相關場地使用這個應用程式，以監察和提升承辦商的工作表現。

AI-enabled monitoring systems are also used in public markets. These include an escalator monitoring system with AI and cameras to monitor the maintenance work of contractors.

In the past, AI could not identify the exact cause of a passenger falling on an escalator, which however is important for us to formulate appropriate improvement measures. To tackle the issue, our colleagues came up with the idea of hiring stunt performers to imitate the movements of a person falling due to fainting, illness, equipment failure or other reasons. These movements were recorded on video and fed into the machine learning model of the AI system to enhance its analytical power. The enhanced AI escalator monitoring system has been piloted at the Tai Shing Street Market in Wong Tai Sin with good results.

◀ 我們與香港城市大學合作，為香港海防博物館開發智能電掣房。智能電掣房利用無線傳感器和遙距監測技術收集數據，有助我們掌握電氣裝置的狀況。

We collaborated with the City University of Hong Kong to develop a Smart Switch Room for the Hong Kong Museum of Coastal Defence. The Smart Switch Room uses wireless sensors and remote monitoring technology to collect data, helping us to gauge the condition of the electrical installations.

▶ 我們為大成街街市研發自動梯監察系統，該系統採用人工智能科技，並透過機器學習改良，不但可監察承辦商的工作，更可偵測多種不同的事故情況，並通知我們有關事件，同時錄影事發經過，方便職員查看。

We have developed an escalator monitoring system for the Tai Shing Street Market. With the adoption of AI technology and enhancement through machine learning, the system can monitor not only the work of contractors but also various incidents. It will notify us of incidents and capture the course of incidents for inspection by staff.



I&T solutions also support operations at cultural venues. Taking the Hong Kong Museum of Coastal Defence as an example, the EMSTF has been working with the City University of Hong Kong in recent years to develop a Smart Switch Room, using sensors and remote monitoring technology to gather data about the condition of switch rooms for better maintenance. Our ultimate goal is to develop an asset health index to gauge the condition of electrical installations at the museum.

In this digital age, demands for "ArtTech" to support arts and cultural activities have kept on rising. Our team has been receiving training on the operation of the computerised stage lighting for the forthcoming opening of the East Kowloon Cultural Centre. As for the virtual gaming venues under the Leisure and Cultural Services Department, we have provided support for its "SportsTech" pilot projects, which may bring us maintenance opportunities in the future. To monitor the performance of contractors at various municipal, recreational and cultural venues, a mobile app namely "Hearts" has been piloted since July 2021. The goal is to roll out the app for use in relevant venues across the 18 districts in order to monitor and enhance the performance of contractors.

至於新政府場地的操作及維修保養方面，我們已開始為長沙灣庫務大樓的測試及校驗工作提供技術意見。新大樓日後不但供庫務署使用，也是1823服務中心的辦公地點，該中心會為市民提供24小時一站式查詢服務。此外，我們已為屯門小欖綜合康復服務大樓的測試及校驗工作提供支援。該大樓會提供150個住宿名額和560個日間護理名額，於2022年年底會交由營運基金負責操作及維修保養服務。

政府各部門對創科和數碼化支援服務的需求殷切，我們也竭盡所能，滿足客戶所需。例如政府資訊科技總監辦公室轄下的長沙灣政府數據中心大樓是政府首個特設的第三級數據中心，也是營運基金服務組合中首個第三級數據中心。該中心預計可在2022年投入服務。

入境事務處位於將軍澳的新總部大樓由動工至今，營運基金一直為該處提供技術支援。現時在灣仔的總部，以及分布在各區的辦事處和設施會重置於新總部。

As for the operation and maintenance (O&M) of new government venues, we have been providing technical advice for the testing and commissioning (T&C) of the Treasury Building in Cheung Sha Wan. The new building will not only serve the Treasury, but also house the 1823 Call Centre to provide one-stop round-the-clock public enquiry service. We also supported the T&C work for the Siu Lam Integrated Rehabilitation Services Complex in Tuen Mun, which will provide 150 residential and 560 day care places. The facility will be handed over to us for O&M services in late 2022.

We are dedicated to meeting the strong demands of various government departments for I&T and digitalisation support too. For example, the Government Data Centre Complex under the Office of the Government Chief Information Officer at Cheung Sha Wan is the first purpose-built Tier III data centre of the Government and the first Tier III data centre in the EMSTF's service portfolio. The Government Data Centre is scheduled to commence operation in 2022.

Furthermore, we have been providing technical support to the new Immigration Headquarters in Tseung Kwan O since it commenced construction. The existing Headquarters in Wan Chai, as well as other offices and facilities currently located in various districts, will be reprovisioned at the new Headquarters.



▲▶ 機電署為長沙灣庫務大樓的機電系統及設備進行測試及校驗工作，確保大樓正式落成後各客戶部門能順利投入運作，服務市民。

The EMSD tested and commissioned the E&M system and equipment for the Treasury Building in Cheung Sha Wan to ensure that client departments can commence their services to the public smoothly upon its practical completion.





## 營運服務 Trading Services

新總部會提供多種不同的公共服務，例如簽發護照、簽證、身份證，以及辦理出生和婚姻登記。由於預計使用者眾多，我們致力應用各種創科方案，提升客戶的運作，使之變得更具智慧效能和效益，以配合有關公共服務的需求不斷增加。

我們在此重點項目的主要工作，是從技術及保養維修角度提供專業意見。具體工作包括審閱技術設計、審核有關方面呈交的文件、現場協調各方的工作，以及測試和校驗各種電子系統。作為政府的「創新促成者」，我們也積極向客戶建議和落實各種先進的創科方案。

「智慧監獄」是懲教署和營運基金合作進行的項目。兩者攜手開發和試驗多個創科方案，以提高懲教院所的運作效率和改善在囚人士的福祉。例如「非接觸式在囚人士生命體徵檢測系統」運用雷達技術，監測保護房間內的在囚人士的生命徵象。這個方案在2022年日內瓦國際發明展榮獲銀獎。另一例子是影像分析及監察系統，運用以骨架為參考基礎的演算法和閉路電視偵測在囚人士的異常行為，以策安全。這個方案也榮獲「香港工程師學會創意獎2021」（青年會員組）優異證書（組別II）。

值得一提的是，香港第一所智慧監獄大潭峽懲教所，已於2021年5月正式啟用。該院所運用嶄新科技提升運作效率，為在囚人士提供更安全和穩妥的羈押環境。



▲懲教署積極與機電署合作，在大潭峽懲教所建設本港首個智慧監獄，並於2021年5月舉行啟用典禮。我們協助懲教署應用多個創科系統，包括影像分析及監察系統、在囚人士電子儲物櫃系統及綜合智能通訊系統，提升懲教院所的保安水平和運作效率。

The CSD actively collaborated with the EMSD to build the first Smart Prison in Hong Kong at the Tai Tam Gap Correctional Institution and its launching ceremony was held in May 2021. We assisted the CSD in employing various I&T systems, including the Video Analytic Monitoring System, the E-locker System for PICs and the Integrated Intelligent Communication System, to enhance the security and operational efficiency of correctional institutions.

The new Headquarters will provide a wide spectrum of public services, such as issue of passports, visas and identity cards, and registration of births and marriages. As high visitor patronage is expected, we strive to make the operation of our client even smarter and more efficient with I&T solutions, so as to meet the ever-increasing demand of its public services.

Our main role in this signature project was to provide professional advice from technical and maintenance perspectives. Our specific work included reviewing technical designs, vetting submissions, site co-ordination and T&C of various electronics systems. Fulfilling our role as the Innovation Facilitator of the Government, we also proposed and implemented various state-of-the-art I&T solutions for the client.

The Smart Prison is a project jointly undertaken by the Correctional Services Department (CSD) and the EMSTF. Together, we have developed and piloted a number of I&T solutions to enhance operational efficiency of correctional institutions and improve the wellbeing of PICs. One example is the Contactless Inmate Health Monitoring System in Prison, which can monitor the vital signs of PICs in protected rooms with radar technology. This solution won a silver medal at the International Exhibition of Inventions of Geneva 2022. Another example is the Video Analytic Monitoring System, which can detect any abnormal behaviours of PICs for safety sake, with a skeleton-based algorithm and closed circuit television cameras. This solution won a Certificate of Merit (Category II) in the Hong Kong Institution of Engineers (HKIE) Innovation Award 2021 (Young Member Group) too.

It is noteworthy that Hong Kong's first Smart Prison, Tai Tam Gap Correctional Institution, was officially launched in May 2021. The facility uses new technologies to enhance its operational efficiency, thereby providing a safer and more secure custodial environment for PICs.



我們為渠務署開發的「智慧渠務－防洪監察系統」，是另一個為市民服務卻又較鮮為人知的創科項目。由於項目非常成功，我們曾在香港工程師學會舉辦的智能生活國際會議上發表文章，分享團隊設計系統和在全港各處設置超過200個監測點的經驗。監測點與保障公眾生命及財產的防洪監察流程全面結合，而防洪監察正是渠務署的重要業務之一。此外，我們為渠務署監測家居污水中2019冠狀病毒含量的工作提供支援，也備受該署讚賞。事實證明，污水監測在找出病毒傳播源頭和遏止病毒在社區傳播方面，非常奏效。

我們與渠務署、水務署和香港中文大學合作，共同開發一套新的地下渠道無線通訊系統，該系統運用「政府物聯網」，並採用通常在衛星通訊使用的四臂螺旋天線，妥善解決渠蓋令訊號減弱的問題。新設備耗電量低，無需經常更換電池，因此也可降低管理成本。新系統在雨水排水道及食水管道系統的水浸黑點均適用，令客戶更加滿意。

在創新技術方面，由廣東省科學技術協會與機電工程署聯合舉辦的「國際建築機電人工智能大挑戰」，是機電署在2021/22年度內的一項重要活動。這個跨越地域界限的創科活動在2021年8月展開，內容豐富，包括國際論壇、工作坊和比賽，各項活動都聚焦於把人工智能應用在屋宇裝備方面。



The Smart Drainage – Flood Monitoring System developed for the Drainage Services Department (DSD) is another behind-the-scene I&T project for the public. The project is so successful that our team has delivered a relevant paper at the International Conference on Smart Living organised by the HKIE. In the paper, we share our experience in the design of the system and setting-up of over 200 flood monitoring points across the territory, all fully integrated into the process of flood monitoring in protecting public lives and property, which is one of the DSD's core business processes. In addition, our support to the DSD for its sewage surveillance work to monitor the viral loads of COVID-19 in domestic sewage has been well received too. The sewage surveillance has proved highly effective in locating the sources of transmission and containing the spread of the virus in the community.

In collaboration with the DSD, the Water Supplies Department and the Chinese University of Hong Kong, we developed a new wireless communication system for underground drains with the application of Government-Wide Internet of Things Network (GWIN) and Quadrifilar Helix Antenna generally deployed for satellite communication, which has solved the problem of signal blockage of manhole covers. The new device consumes much less power and requires less frequent replacement of battery, thus lowering the management cost too. The new system is applicable to flooding blackspots both in stormwater drainage and freshwater piping systems, further increasing the satisfaction of our client.

On innovative technologies, a milestone event in 2021/22 was the Global AI Challenge for Building E&M Facilities jointly organised by the Guangdong Provincial Association for Science and Technology and the EMSD. Launched in August 2021, the cross-regional innovative event was rich in content, with a technical conference, a workshop and a competition, all focusing on the application of AI in the building services installations.

◀▼機電署與香港中文大學合作，研發嶄新的地下渠道無線通訊系統，並取得專利。此方案應用四臂螺旋天線及「政府物聯網」，有助解決渠蓋令訊號減弱的問題，使客戶能更有效地監測地下排水系統。

The EMSD and the Chinese University of Hong Kong jointly developed a new patented wireless communication system for underground drains. With the application of Quadrifilar Helix Antenna and the GWIN, this solution can help solve the signal blockage caused by manhole covers, thus ensuring more effective monitoring of the underground drainage system by clients.





## 營運服務 Trading Services

國際論壇在2021年10月舉行，歡迎世界各地的研究人員、學生和初創企業等參加，最終吸引約2 300名參加者和25位頂尖專家出席會議。隨後舉行的人工智能大挑戰，也收到來自十個地區超過120個隊伍的參賽作品。參賽隊伍須開發一個語義人工智能模型，用以預測一幢商業大樓的製冷負荷需求。這些活動為與會者提供獨一無二的機會，讓參加者、行業領袖、創新者和研究人員分享和交流創新構思，共同推動應用人工智能技術的工作，為世界帶來正面影響。

我們預計，以下三類創科方案的需求會與日俱增：一是容易按客戶需要訂造的機械人，用於清潔、巡邏和派送等工作；二是節能和減省人力的機電設備方案；三是遙距監測和控制各種機電系統的方案。為滿足客戶在這些創科範疇的需求，我們會繼續提升營運基金的軟件開發和大數據應用能力，並與學術界和初創企業加強合作。

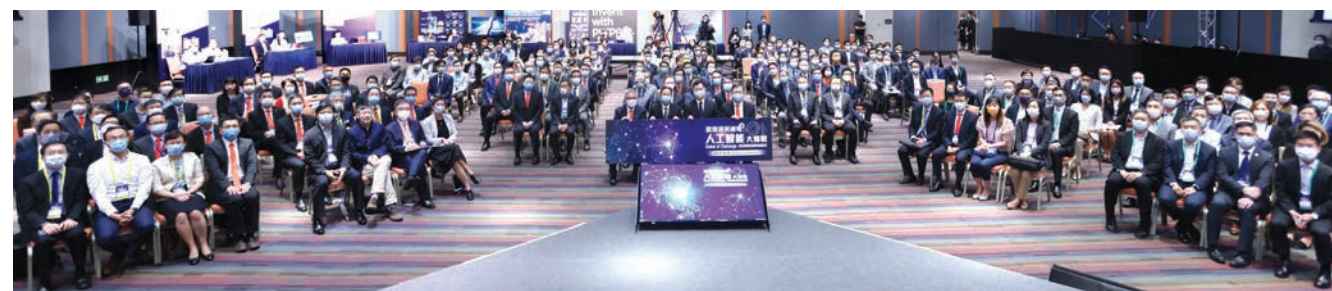
Open to researchers, students and start-ups around the world, the technical conference in October 2021 attracted some 2 300 participants and 25 leading experts. The subsequent AI competition received entries from more than 120 teams in ten regions, and the participating teams were required to develop a semantic AI model to predict the cooling demand of a commercial building. These activities presented a unique opportunity for the participants, industry leaders, innovators and researchers to share and exchange ideas, and promote the application of AI technology for making a positive impact to the world.

We envisage ever-increasing demands for the following three types of I&T solutions: easily customised robots for various cleaning, patrol and delivery duties; solutions for E&M equipment to save energy and reduce manpower; and solutions for remote monitoring and control of diverse E&M systems. To satisfy the needs of our clients in these areas, we will continue to sharpen our capabilities in software development and big data application, and collaborate further with academia and start-ups.



◀▼ 2021年下半年，機電署與廣東省科學技術協會合辦全球首個最大規模的「國際建築機電人工智能大挑戰」。活動內容豐富，包括國際論壇（下圖）、人工智能大賽和工作坊。

In the second half of 2021, the EMSD jointly held the world's first and largest Global AI Challenge for Building E&M Facilities with the Guangdong Provincial Association for Science and Technology. Rich in content, the event included a technical conference (bottom), an AI competition and a workshop.



► 疫情期間，我們為客戶引入嶄新的消毒機械人。機械人會自動進行消毒工作，可減輕清潔員工的工作量和降低感染風險。

During the epidemic, we introduced a new disinfection robot to our clients. The robot can carry out disinfection automatically, thus reducing the workload and infection risk of cleansing staff.



## 人工智能火化 推動行業發展 When AI Meets Cremation: A Drive for Taking the Industry Forward

工程師張立鴻先生（左二）、助理工程師馮鎮國先生（右二）與團隊研發一套獲獎的「人工智能優化火化流程系統」。該系統利用影像分析及人工智能技術，優化各火化時段，減少所需時間及燃料消耗。

Mr Cheung Lap-hung (2nd left), an engineer, Mr Fung Chun-kuo (2nd right), an assistant engineer and the team have developed an award-winning AI Based Image Analytic and Control System for Cremation Process which uses image analytics and AI technology to optimise each cremation session, thus reducing the time required and fuel consumption.



數碼化和人工智能兩者為許多行業帶來變革，但火葬業屬於傳統行業，加上部分人覺得忌諱，因此業界要採用數碼科技和人工智能，殊非易事，絕對是挑戰。儘管如此，市政工程部工程師張立鴻先生認為，數碼化不但可提升效率，也可騰出人手處理緊急維修及保養，從而加以善用員工的專業知識，因此火化服務理應朝着數碼化的路向發展。

有見及此，他提出「人工智能優化火化流程系統」或稱為「智能火化」的解決方案，該系統更榮獲2022年日內瓦國際發明展銀獎。

張先生說：「在整個系統的開發過程中，我們十分感謝客戶食物環境衛生署和前線員工的鼎力支持。」我們正在和合石火葬場共六個火化爐試驗該系統，並計劃在2023年年底正式啟用。

訓練人工智能模型是落實方案的關鍵，也是最耗時和最昂貴的環節。我們除了為每個火化爐安裝攝錄機，收集足夠操作數據及火化狀況作影像分析外，還須經驗豐富的前線人員觀察每節長約兩小時的火化過程，並提供意見回饋，以不斷提升人工智能模型的效能和穩定性。整個開發過程中需要重複多次「訓練」，以優化人工智能系統。

張先生解釋說：「為增強員工的信心，我們設置『智能火化』儀表板，實時顯示各種操作參數，讓員工親眼看到人工智能系統如何模擬和操控火化過程的全部四個階段。」儀表板具體證明人工智能勝任工作，令員工對該系統的信心大增。另外，如果該系統出現問題，員工也可隨時介入處理，足見操作人員仍能為火化工作增值。該系統已取得專利，團隊現正開發「智能火化」系統2.0版本，未來或會在其他火葬場應用。

張先生總結道：「我們欣喜傳統行業正在改變，採納新科技及創新意念。」在開發過程中，其中一間德國火化爐製造商洞悉人工智能應用的潛在優勢，並已對其火化爐的設計作出重大改變，在新建項目中將攝錄機配置定為標準功能規格。

While digitalisation and artificial intelligence (AI) have brought transformational changes in many industries, it remains challenging for the cremation trade to adopt the two since cremation is a traditional business and perceived by some as a taboo subject. Even so, Mr Cheung Lap-hung, an engineer of the Municipal Sector Division, believes that digitalisation is the right path for cremation services because it not only enhances the work efficiency but also releases staff to take on emergency repairs and maintenance, putting their expertise to better use.

He, therefore, has put forward a solution called the AI Based Image Analytic and Control System for Cremation Process or i-Cremation, which won a silver medal at the International Exhibition of Inventions of Geneva 2022.

"We must thank our client the Food and Environmental Hygiene Department and our frontline staff for their support throughout the development process," Mr Cheung said. The system is being piloted at six cremators at the Wo Hop Shek Crematorium and scheduled to be launched officially by the end of 2023.

Training the AI model is the key. It is also the most time-consuming and costly part of the deployment process. Apart from installing a video camera in each cremator to capture sufficient operational data and cremation status for image analytics, experienced frontline staff must also observe the entire cremation process, which takes about two hours, and provide feedbacks to continuously improve the performance and stability of the AI model. This "training" process has been repeated many times to enhance the AI in the development.

"To enhance staff confidence, we set up a dashboard showing the various real-time operational parameters of i-Cremation in action. Our staff can see for themselves how the AI system simulates and controls all four stages of the cremation process," he explained. The dashboard has boosted staff confidence as it shows vividly that AI can do the job competently. Furthermore, if anything goes wrong, staff can intervene anytime, demonstrating that human operators still can add value to the cremation work. The team is working on a 2.0 version of the patented i-Cremation, which may be deployed at other crematoria in future.

"We are very delighted to see the changes of this traditional industry by adopting new technologies and innovative ideas," Mr Cheung concluded. During the development of our project, one of the existing German manufacturers has seen the potential benefit of AI application and has already made an important change in their original cremator design to add video cameras as a standard feature in new projects.



## 企業管理 Corporate Stewardship

2021/22 年度，各個企業單位繼續支持營運基金發揮政府「創新促成者」的角色，推動香港進一步的智慧及環保城市發展，並致力實現企業目標，「透過與不同持份者的伙伴關係，創造公眾價值及改善社會」。儘管2019冠狀病毒病不斷帶來各種挑戰，我們仍繼續努力為各個策略業務單位、機電業界、機電署同事及廣大市民提供支援，助力營運基金向前邁進，踏上新征途。

### 支援客戶和機電業界

#### 防疫抗疫措施

我們的業務持續計劃書讓部門在整段疫情期間能繼續維持核心運作，並提供必要的客戶服務，效益有目共睹。業務持續計劃書現已更新至第23版，所載的各項指引和感染控制措施已適時調整，以應對2022年年初第五波疫情爆發時確診個案激增的情況。

我們繼續確保所有策略業務單位的個人防護裝備和其他防疫物資供應充足，並採用消毒機械人等創新科技(創科)方案支援抗疫。其他措施包括加強機電署總部大樓的保安和進入大樓所須遵守的規定、在受影響的辦公室範圍進行深層清潔、規定員工和訪客必須使用「安心出行」流動應用程式，以及進入總部大樓和外設辦事處的員工必須出示疫苗通行證等，旨在盡量減低員工和訪客的染疫風險。

▼職員和訪客在進入機電署總部大樓及外設辦事處前，必須掃描「安心出行」二維碼，並出示「疫苗通行證」或「特別通行證」。Staff and visitors were required to scan the "LeaveHomeSafe" QR code and produce their Vaccine Passes or Special Passes before being allowed to enter the EMSD Headquarters and its outstations.



During 2021/22, our corporate units continued to support the EMSTF in its role as the Government's Innovation Facilitator, promoting the development of Hong Kong into a smarter and greener city while pursuing the corporate goal of "creating public value for community betterment through partnership with different stakeholders". Our continued support to all Strategic Business Units (SBUs), the E&M trade, colleagues and the community has helped the EMSTF forge ahead on its new journey, notwithstanding the ongoing challenge of the Coronavirus Disease 2019 (COVID-19) epidemic.

### SUPPORTING THE CLIENTS AND E&M TRADE

#### Anti-epidemic Measures

Our Business Continuity Plan has proved valuable in maintaining the Department's core operations and essential client services throughout the epidemic. Now its 23rd version includes timely adjustments to the guidelines and infection control measures for us to cope with the sudden surge of confirmed cases in the fifth wave of the epidemic which started in early 2022.

We continued to ensure the provision of adequate personal protective equipment (PPE) and other anti-epidemic supplies for all SBUs, and provide relevant support by innovation and technology (I&T) solutions such as disinfection robots. Other measures included enhanced security and admission requirements for our headquarters, deep cleaning of affected office areas, mandatory use of the "LeaveHomeSafe" mobile app for staff and visitors as well as a mandatory requirement for staff entering the headquarters and outstation offices to present their Vaccine Passes, all aimed to minimise the risk of infection for staff and visitors.



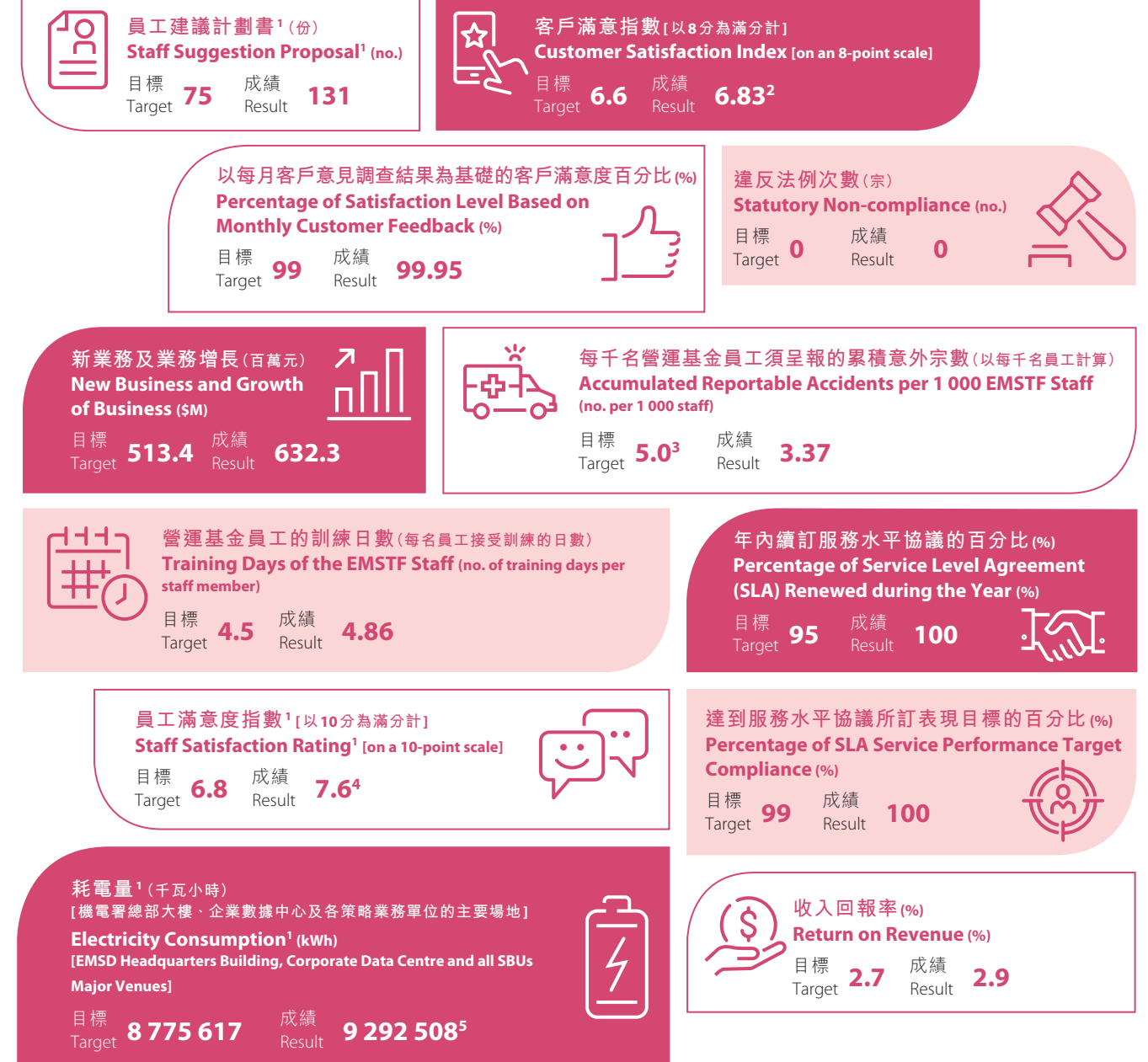
▲►我們除了加強機電署總部大樓的定期清潔工作外，亦安排在受影響的辦公區域進行消毒，以及在公用地方及設施噴灑抗病毒殺菌塗層，為同事提供清潔和安全的工作環境。

In addition to stepping up our regular cleaning efforts, we arranged disinfection of the affected office areas and spraying of antimicrobial coating for the common areas and facilities in the EMSD Headquarters to provide a clean and safe working environment for colleagues.



### 2021/22 財政年度關鍵績效指標成績及表現承諾

### Key Performance Indicator Results and Performance Pledges in Financial Year 2021/22



<sup>1</sup> 此項目適用於機電工程署整個部門，其他項目只適用於機電工程營運基金。

<sup>2</sup> 數字為2020年的調查結果。下一次調查將於2022年進行。

<sup>3</sup> 此為警戒水平，並非目標。

<sup>4</sup> 數字為2021年的調查結果。

<sup>5</sup> 企業數據中心擴展新的資訊科技系統，以及抗疫措施帶來額外的工作時數，導致耗電量上升。

<sup>1</sup> This item applies to the EMSD as a whole. Other items apply to the EMSTF only.

<sup>2</sup> Results are derived from the survey conducted in 2020. The next survey will be conducted in 2022.

<sup>3</sup> This is an alert level, not a target.

<sup>4</sup> Results are derived from the survey conducted in 2021.

<sup>5</sup> The increase of electricity consumption was due to the new information technology system expansion in the Corporate Data Centre and the additional working hours for anti-epidemic measures.



## 企業管理 Corporate Stewardship



◀同事積極參與疫苗接種計劃，透過在機電署外展疫苗接種日以及團體預約形式到社區疫苗接種中心接種疫苗，協助築起保護屏障，保障自己、家人和同事的健康。

Colleagues actively participated in the vaccination programme by receiving vaccination on the EMSD Outreach Vaccination Day and through group appointments at Community Vaccination Centres to help build a protective barrier and safeguard their own health as well as that of their families and co-workers.

接種疫苗是控制感染的關鍵。我們響應政府的「全城起動 快打疫苗」運動，積極鼓勵所有員工和他們的家屬接種疫苗，並由公務員事務局安排外展疫苗接種服務，於2021年7月16日到總部大樓為超過200位同事和他們的家屬接種疫苗。此外，我們亦為員工和他們的家屬安排團體預約，便利他們於2021年8月到社區疫苗接種中心接種疫苗。

營運基金在疫情期間能一直為客戶提供服務，從無間斷，有賴以上措施，更重要是全體同事無懼挑戰，堅守崗位，竭誠盡心付出。

### 竭誠盡心服務市民

第五波疫情爆發期間，政府須在全港各區多個指明「受限區域」內的住宅樓宇進行「圍封強檢」行動。2022年1月，我們在短時間內動員多位同事為「圍封強檢」行動提供支援，初期負責前線工作，例如為葵涌邨居民派送膳食。其後，我們調動數百名員工到多個地點領導和參與「圍封強檢」行動，工作主要包括協助居民登記、登門家訪、回覆查詢，以及向居民送遞和派發物資等。我們確保所有參與行動的同事都穿戴全套個人防護裝備和配戴N95口罩，並在同事重返工作崗位前和行動後一周內為他們提供免費檢測。

隨着第五波疫情升溫，政府動員數百名的士司機組成專屬的士車隊，為確診者提供往返指定診所及其住處的免費接送服務，以便他們接受治療。我們在短短不足兩天時間內設立預約專屬車隊服務熱線，迅速完成所有電話系統的配置、人手安排，並制訂

Vaccination is the key to infection control. In response to the Government's "Early Vaccination for All" campaign, we encouraged staff and their families to get vaccinated and arranged an outreach vaccination service through the Civil Service Bureau (CSB), with more than 200 colleagues and their family members vaccinated at our headquarters on 16 July 2021. We also facilitated staff and their families to get vaccinated at the Community Vaccination Centres in August 2021 through group bookings.

Thanks to all of these measures, and more importantly the dedication and devotion of colleagues, we were able to provide uninterrupted EMSTF services to clients amid the COVID-19 outbreak.

### Devoted to Serving the Public

The fifth wave of the epidemic has necessitated "restriction-testing declaration" (RTD) operations to be carried out in residential buildings within numerous specified "restricted areas" across the territory. In January 2022, we mobilised colleagues at short notice to support these operations, initially undertaking frontline tasks such as delivering hot meals to residents in Kwai Chung Estate. Since then, hundreds of our colleagues have been deployed at many locations to lead or participate in the RTD operations. Our tasks mainly included assisting residents in registration, conducting home visits, answering enquiries and delivering and distributing supplies to residents. We ensured that all colleagues taking part in these operations wore full PPE and N95 masks and had access to free testing before returning to work and within the week after their operations.

As the fifth wave of the epidemic escalated, the Government mobilised hundreds of taxi drivers to set up a designated taxi fleet to provide patients with free transport services between their residences and the designated clinics for medical treatment. We set up a hotline for booking designated taxis in less than two days, promptly completing all telephone system configuration, manpower arrangements and

來電處理指引等，使熱線得以在2022年2月中投入服務。專屬車隊約半數的預約都是通過熱線服務安排。

為了鼓勵更多長者接種新冠疫苗，政府在2022年3月底推出「疫苗到戶接種服務」。我們為公務員事務局物色合適的中型客貨車進行翻新，並安裝車內供電系統，確保外展醫療團隊到全港各區提供疫苗接種服務時，有足夠電力以應付全日打印疫苗接種紀錄和冷藏疫苗等運作所需。



機電署各個個別及單位的同事在這次疫情危機中，無懼挑戰，通力合作，充分發揮「以民為本」的服務精神全力支援抗疫，其中24名同事（包括借調至其他工務部門的員工）更獲頒2021年行政長官公共服務獎狀，表揚他們在防疫抗疫中出色的工作表現。

獲獎員工的抗疫工作範圍甚廣，包括為多個感染控制和檢疫中心迅速安裝、測試和進行調校機電設施；為社區檢測中心和社區疫苗接種中心設置機電系統；檢查餐廳食肆、安老院舍和其他爆發羣組個案場所的通風系統；以及在制訂換氣指引方面提供技術支援等，建樹良多，不勝枚舉。我們能夠為市民服務並獲得肯定，深感榮幸。

▶機電署24位員工獲頒行政長官公共服務獎，表揚他們過去一年應對2019冠狀病毒病疫情及相關工作的貢獻。24 EMSD staff received the Chief Executive's Commendation for Government/Public Service, in recognition of their efforts and contribution in the fight against the COVID-19 epidemic and related work in the past year.

drawing up call handling guidelines for the hotline to commence operation in mid-February 2022. About half of designated taxi bookings have been made through the hotline service.

To encourage more elderly people to get vaccinated, the Government introduced the Home Vaccination Service in late March 2022. We identified and refurbished suitable medium vans for the CSB. We also provided on-board power supply systems to ensure that the outreach medical teams will have sufficient power supply for printing vaccination records and storing vaccines in medical refrigerators during day-long field operation throughout the territory.

◀在第五波疫情中，機電署積極參與抗疫工作，帶領團隊負責葵涌邨膳食送暖行動，並多次在指明「受限區域」內進行「圍封強檢」行動，協助受影響的居民，務求在社區及早遏制病毒傳播，在疫境中與市民並肩同行。

In the fifth wave of the epidemic, the EMSD actively participated in anti-epidemic work by leading a team to deliver hot meals to residents of Kwai Chung Estate, and carrying out various "restriction-testing declaration" operations in the specified "restricted areas". We assisted residents who were affected by the operations and walked hand in hand with the public, with a view to the early containment of the virus in the community.

Staying true to the EMSD's spirit of supporting the community in times of crisis, our colleagues in all divisions and units have exerted undaunted efforts in carrying out anti-epidemic duties with great dedication and teamwork. A total of 24 EMSD staff, including those seconded to other works departments, were awarded the Chief Executive's Commendation for Government/Public Service 2021 in recognition of their outstanding performance in the fight against COVID-19.

The awardees' contribution was diverse, including the speedy construction, testing and commissioning of E&M facilities in various infection control and quarantine centres; setting up E&M systems at Community Testing Centres and Community Vaccination Centres; checking ventilation systems in restaurants, residential care homes for the elderly and other venues with outbreaks; and providing technical support in drawing up air change guidelines, just to name a few. We are honoured by the recognition and glad to be of service.





## 企業管理 Corporate Stewardship

### 支援機電業界的措施

儘管受疫情影響，我們仍積極舉辦各項活動以支援承辦商和機電同業，包括在2021年6月至2022年3月期間舉行四場機電署承辦商研討會，以及在2021年6月與建造業議會和香港機電工程師聯合辦機電裝備合成法研討會，向機電業界推廣使用創新的機電裝備合成法技術。研討會以實體和線上形式進行，業界反應熱烈。

另一重要業界活動是機電工程署研討會。今年的研討會於2022年1月在線上舉行，以「共創無限 實現碳中和」(CO-innovinity)為主題，當中包含碳中和(Carbon Net-Zero)、創新(Innovation)和無限機遇(Infinite opportunities)的寓意。研討會吸引超過1 400名來自本地、內地和海外政府部門、公營機構、創科業界、機電業界和學術界人士參加，共同探討促進碳中和及合作創新的方法。

為慶祝營運基金成立25周年，我們於2021年8月舉行「機電工程營運基金25周年紀念典禮」，時任政務司司長李家超先生更蒞臨主持啟動儀式。典禮及誌慶活動以「同・創・傳・期」為主題。總部大樓的「機電創科廊」亦於同日正式開幕，向業界及市民展示機電署的創科項目。

在紀念典禮上，「國際建築機電人工智能大挑戰」揭開序幕，活動旨在推動於既有建築物機電系統上應用語義人工智能。「大挑戰」成功吸引了超過2 000名



### Initiatives for Supporting the E&M Trade

Despite disruption caused by the epidemic, we continued to organise various events to support our contractors and the E&M trade, including four sessions of the EMSD Contractors Forum held from June 2021 to March 2022, as well as the MultiTrade integrated Mechanical, Electrical and Plumbing (MiMEP) Forum co-organised with the Construction Industry Council and the Hong Kong Federation of Electrical and Mechanical Contractors in June 2021 to promote the use of innovative MiMEP technologies in the E&M trade. Both forums in physical and online formats were well-received by the trade.

Another major trade event was the EMSD Symposium held online in January 2022. Inspired by Carbon Net-Zero, Innovation and Infinite opportunities, the symposium of this year took “CO-innovinity” as its theme and attracted over 1 400 participants from local, Mainland and overseas government departments, public organisations, the I&T sector, the E&M trade and academia to explore ways to promote carbon neutrality and collaboration in innovation.

To celebrate our silver jubilee, we held the EMSTF 25th Anniversary Commemorative Ceremony in August 2021, which was officiated by Mr John Lee, the then Chief Secretary for Administration. The theme of the ceremony and related celebrations was “Co-innovate and Co-create Our Future”. The day also marked the official opening of the E&M InnoFoyer, a gallery at our headquarters, to showcase our I&T projects to the trade and the public.

The Global AI Challenge for Building E&M Facilities was also launched during the anniversary ceremony, aiming to promote the application of semantic artificial intelligence (AI) in existing E&M systems of buildings. Over 2 000 participants

◀ 2021年7月，機電署與香港機電業推廣工作小組在教育及職業博覽中學辦機電業博覽2021，藉此向年輕一代推廣機電行業。

In July 2021, the EMSD and the Hong Kong Electrical and Mechanical Trade Promotion Working Group held the Electrical and Mechanical Expo 2021 in the Education & Careers Expo to promote the industry to the younger generation.

▼ 機電工程營運基金25周年紀念典禮已於2021年8月順利舉行，主題為「同・創・傳・期」。時任政務司司長李家超先生(左六)主持啟動儀式。

The EMSTF 25th Anniversary Commemorative Ceremony was successfully held in August 2021 under the theme of “Co-innovate and Co-create Our Future”. Mr John Lee, the then Chief Secretary for Administration (6th left) officiated at the ceremony.



▶ 機電署與廣州市人力資源和社會保障局促成並派員見證職業訓練局、中華電力有限公司與廣州市工貿技師學院簽訂《穗港電業工程人才培養合作備忘錄》。該備忘錄旨在加強穗港兩地人才共融與發展。

The EMSD and the Guangzhou Municipal Human Resources and Social Security Bureau facilitated and sent representatives to witness the signing of the Memorandum of Co-operation on the Training of Electrical Engineering Talent in Hong Kong and Guangzhou by the Vocational Training Council, the CLP Power Hong Kong Limited and the Guangzhou Industry and Trade Technician College. The memorandum aimed to strengthen the integration and development of talent in Guangzhou and Hong Kong.

來自世界各地的科研人員、學生、初創公司和企業等親身到場或在線上參加技術交流研討會，全球更有120多支團隊報名參加人工智能大賽。參加者反應熱烈，活動大獲成功，正好體現了學術界和業界人士共享共創探討建築機電人工智能的發展。

年內，我們繼續努力協助機電業界吸引更多年輕新血投身機電行業。2021年7月，我們再次參加教育及職業博覽，在博覽會現場舉辦機電業博覽2021。此外，為歡迎剛剛加入機電業的年輕生力軍，我們與香港機電業推廣工作小組於2021年11月再次合辦「機電・啟航2021」迎新典禮，當日有數百名朝氣蓬勃、來自香港各大機電機構的新晉見習技術員出席，非常熱鬧。

儘管疫情持續，我們與廣州市人力資源和社會保障局繼續合作，按合作備忘錄舉辦各項活動，包括為部門的見習技術員提供跨境線上培訓。2021年，廣州市技師學院、廣州市工貿技師學院、廣州市交通技師學院及廣州市機電技師學院為我們提供五個線上培訓課程，內容有關電氣、空調、屋宇裝備及車輛維修，每個課程為約20名見習技術員提供培訓。

機電署在推動跨境培訓方面取得突破，促成中華電力有限公司(中電)、職業訓練局(職訓局)及廣州市工貿技師學院合辦培訓課程，讓香港機電從業員可考取內地「特種作業操作證(高壓電工證)」，以便日後在大灣區工作。中電、職訓局及廣州市工貿技師學院已於2021年10月以線上形式簽署合作備忘錄，有關課程將於2022年7月開課。

◀ 機電署與廣州市人力資源和社會保障局簽訂多份合作備忘錄，與廣州市多個技師學院合作，為見習技術員舉辦線上培訓課程，讓他們在疫情期間仍可繼續學習。

The EMSD signed a number of memoranda of co-operation with the Guangzhou Municipal Human Resources and Social Security Bureau and co-organised online training programmes with various technician colleges in Guangzhou for technician trainees to continue their studies during the epidemic.



including researchers, students, start-up companies, and corporations from worldwide joined the physical or online technical conference while more than 120 teams from around the world enrolled in the AI contest. The inaugural event was successfully held and has aroused enthusiastic responses from the academics and the trade to share and to co-innovate on the development of AI for the building E&M sector.

Our efforts to help the E&M trade attract more young talent continued in 2021 by holding an on-site Electrical and Mechanical Expo 2021 again in the Education & Careers Expo in July 2021. For young people who had recently joined the E&M industry, we co-organised with the Hong Kong Electrical and Mechanical Trade Promotion Working Group the “E&M GO! 2021!” Orientation Ceremony in November 2021 to welcome them on board. The ceremony was well attended by hundreds of enthusiastic new technician trainees (TTs) from major E&M organisations in Hong Kong.

Despite the epidemic, we have continued our cross-border online training for TTs, a joint initiative under our Memorandum of Co-operation (MoC) with the Guangzhou Municipal Human Resources and Social Security Bureau. In 2021, the Guangzhou Technician College, the Guangzhou Industry and Trade Technician College (GITTC), the Guangzhou Communications Technician Institute and the Guangzhou Electromechanical Technician College delivered five online training programmes in electrical, air-conditioning, building services and vehicle trades, each taking about 20 TTs.

The EMSD has also achieved a breakthrough in the promotion of cross-border training by facilitating the co-organisation of a joint training programme by the CLP Power Hong Kong Limited (CLP Power), Vocational Training Council (VTC) and GITTC. The programme equipped trade practitioners in Hong Kong to pursue a licence for electrical work on high voltage installations on the Mainland, enabling them to work in the Greater Bay Area in the future. An MoC was signed online by the CLP Power, VTC and GITTC in October 2021. The class will be commenced in July 2022.



## 企業管理 Corporate Stewardship

### 利用創科改善內部流程和提高效率

各個企業單位的創科項目亦取得良好進展，並屢獲殊榮，智能貨倉項目就是一例。智能貨倉是結合自動導引車、機械人操作、貨倉管理和電子儲物櫃的四合一創科方案。我們的倉庫配備移動式貨架，配送過程自動化，真正實現智能貨倉的理念。整個流程（由提交取件表格到收取貨件）全面自動化和電腦化，貨件到達電子儲物櫃後，系統會自動發出短訊通知用戶提貨。自智能貨倉於2021年5月投入運作以來，我們貨倉的儲存量和運作效率已見提高。

智能貨倉由構思至完成只需短短一年時間，堪稱政府公營部門改革的典範。該項目於2021年7月在政府資訊科技總監辦公室舉辦的「促進機械人科技應用」創新比賽中亦榮獲二獎。

另一創科項目智慧標書系統，旨在讓策略業務單位透過一站式程序編製標準招標文件，從而提高招標文件的質素和招標工作的效率。智慧標書系統在2021年7月1日推出，可自動為同事提供多種標準招標文件。為優化系統，我們於同年12月進行用戶體驗調查，蒐集同事的意見，並與他們分享調查結果。同事建議的各種改善措施已於2022年納入智慧標書系統內。

為配合政府的「智慧出行」措施，我們於2022年2月在總部大樓推出「智能停車場管理系統」試驗計劃。項目運用傳感器和「政府物聯網」蒐集的數據，讓申領「外勤行車津貼」的員工透過智能預約系統流動

▼►(左)機電署智能貨倉團隊獲時任創新及科技局局長薛永恒先生(左三)頒發「促進機械人科技應用」創新比賽的二獎。(右)機電署總部大樓的綜合智能貨倉。

(Left) The EMSD Smart Warehouse team received the first runner-up award in the “Leading Towards Robotics Technologies” Innovation Competition from Mr Alfred Sit, the then Secretary for Innovation and Technology (3rd left). (Right) Integrated Smart Warehouse in the EMSD Headquarters.



### Improving Internal Processes and Boosting Efficiency by I&T

Meanwhile, I&T projects of our corporate units have made good progress and won accolades. An example is the Smart Warehouse project, a four-in-one I&T solution integrating automatic guided vehicles, robot control, warehouse management and e-locker systems. With moveable shelves for automatic delivery, our warehouse is now truly intelligent. The entire process starting from order submission to item collection has been fully automated and computerised, and users will be notified of parcel arrival in the e-locker for pickup via an SMS message. Since the Smart Warehouse came into operation in May 2021, our storage capacity and efficiency has been enhanced.

Conceived and completed within only a year, the Smart Warehouse is a fine example of the Government's public sector reform. It also finished the first runner-up in the “Leading Towards Robotics Technologies” Innovation Competition organised by the Office of the Government Chief Information Officer in July 2021.

Another I&T project, the Smart Tender Document System (STDS), aims to enhance the quality of tender documents and the efficiency of the tendering process by enabling SBUs to compile standard tender documents in one step. Launched on 1 July 2021, the STDS can generate various types of standard tender documents automatically. A user experience survey was held in December 2021 to collect colleagues' feedback for system improvement and the survey results were shared with them. Improvement measures arising from colleagues' comments were incorporated into the STDS in 2022.

To support the Government's Smart Mobility initiative, a trial scheme on the Smart Car Park System was launched at our headquarters in February 2022. By making use of data gathered from sensors and the Government-Wide Internet of Things Network (GWIN), the project enables staff claiming duty mileage allowance (DMA)



▲ 年內，我們在機電署總部大樓推行「智能停車場管理系統」試驗計劃，靈活整合泊車位的安排及裝設泊車位傳感器，利便司機尋找空置的泊車位，增加泊車位的使用率。計劃所得的經驗及成效將有助進一步推動智慧城市發展及促進「智慧出行」。

During the year, a pilot scheme on the Smart Car Park System was launched in the EMSD Headquarters to facilitate drivers' identification of vacant parking spaces and increase the utilisation rate through flexible integration of parking spaces and installation of car park sensors. The experience and results gained from the scheme would help further promote smart city development and foster Smart Mobility.

應用程式，查閱總部大樓70個可供申領「外勤行車津貼」泊車位的實時佔用情況，以減省他們尋找空置泊車位所需的時間。此外，項目亦提高泊車位的使用率和改善用戶體驗。我們會與其他政府部門分享推行試驗計劃的經驗和心得。

機電署第三屆「Inno@E&M 創新科技挑戰賽」於2021年9月展開。這個一年一度的部門內部比賽，旨在鼓勵員工提出有助機電署和其他政府部門運作的創科項目構思，得獎作品可獲部門撥款資助，以實踐構思。今屆比賽的技術主題為「5G及政府物聯網」、「區塊鏈」和「碳中和」。

為提升總部大樓的設施管理和用戶體驗，我們決定由2022年開始，將總部大樓的物業管理服務（包括清潔、園藝、保安、蟲害防治和小型建築維修工程）外判。此舉旨在通過聘用專業的綜合管理服務，讓我們能集中資源處理物管工作，並發揮協同效應。由於物色和聘用承辦商需時，我們於2021年6月推出「維修易」作為臨時的服務改善措施。

「維修易」服務有三名客戶服務主任，負責作為部門員工與建築工程承辦商駐場維修人員之間的溝通橋梁。當總部大樓設施發生故障時，同事可透過WhatsApp、電話熱線、電郵或E&M Connect流動應用程式通知客戶服務主任，後者會立即要求維修人員進行搶修，並盡快向相關同事報告復修進度。有關服務深受同事歡迎，並大幅提升維修工作的效率和用戶體驗。

to obtain real-time information on the 70 parking spaces allocated for DMA via a Smart Reservation System mobile app, thus saving their time for looking for a vacant space. The project also enhances the utilisation of parking spaces and improves user experience. Experience and insights gained from the trial scheme will be shared with other government departments.

We kick-started the EMSD's 3rd Inno@E&M Challenge in September 2021. The annual internal competition aims to encourage our staff to submit I&T project ideas which can benefit the EMSD and other government departments, and funding support will be provided for the implementation of the winning entries. The technical themes of the competition in the year were “5G and GWIN”, “Blockchain” and “Carbon Neutrality”.

To enhance our facility management and user experience, we decided to outsource the property management services, including cleaning, gardening, security, pest control and minor building maintenance, of our headquarters from 2022 onwards. The move aims to focus our resources and create synergy by employing integrated professional management services. As the outsourcing procurement took time, an “Easy Repair” service was introduced in June 2021 as an interim service improvement measure.

Under the “Easy Repair” service, three customer service officers acted as a bridge between our staff and the on-site maintenance personnel from a building works contractor. Any fault reports on the facilities of our headquarters can easily be made to the customer service officers via WhatsApp, a telephone hotline, email and the E&M Connect mobile app. The customer service officers will alert the maintenance staff immediately for appropriate action and provide prompt feedback to the colleagues concerned about the rectification progress. The service was well received by colleagues and has greatly enhanced maintenance efficiency and user experience.



## 企業管理 Corporate Stewardship



▲► 2021年員工滿意度調查的回應率高達50%，而整體員工滿意度指數為7.6分(以10分為滿分)，兩者均創歷史新高。調查進行期間，我們舉辦了多場實地宣傳工作，以提升回應率。In the 2021 Staff Satisfaction Survey, the EMSD achieved record-high results with a response rate of as high as 50% and an overall staff satisfaction rating of 7.6 out of 10. During the survey period, a number of on-site promotions were conducted to boost the response rate.



### 關懷員工

#### 員工滿意度指數創紀錄新高

在最新的2021員工滿意度調查中，以10分為滿分計，員工滿意度指數為7.6分，回應率為50%，兩者均創歷史新高。事實上，機電署已從多方面改善2021員工滿意度調查的問卷設計和調查方法，包括縮短問卷長度，方便員工作答，並設置攤位讓員工在現場完成問卷，從而提高回應率。近年來，我們根據以往多次員工滿意度調查的結果和相關建議，推出各項措施提高員工滿意度，成效顯著。

#### 疫情下保障員工健康福祉

我們繼續在總部大樓和所有外設辦事處推行多項防疫措施，例如確保充足的防疫物資供應、落實在家工作安排、鼓勵及安排員工及早接種疫苗等。為協助同事改善工作與生活平衡以及管理壓力，我們繼續提供由非政府組織運作的個人輔導熱線服務，還舉辦了八場關於精神、情緒和身體健康的線上研討會，有超過1 500位同事參加。



► 同事積極參與機電署舉辦的各種戶外活動，從上山到下山，讓身心得以舒展，強健體魄，紓緩工作及生活壓力。Colleagues participated actively in various outdoor activities organised by the EMSD, exercising from the mountains to the sea, to achieve physical and mental relaxation, improve physical health and relieve stress from work and daily life.

### CARING FOR STAFF

#### Record High Staff Satisfaction Rating

In the latest 2021 Staff Satisfaction Survey (SSS), the EMSD achieved record-high results with a satisfaction rating of 7.6 on a scale of 10 and a response rate of 50%. In fact, the EMSD had improved the design of questionnaire and methodology of the 2021 SSS in various ways, including shortening the questionnaire to make it easier to complete and setting up booths to enable staff to complete the questionnaires on-site, which boosted the response rate. Measures taken to raise staff satisfaction in recent years based on survey findings and suggestions from previous SSSs have proved effective too.

#### Safeguarding the Health and Wellbeing of Staff under COVID-19

We continued to implement various anti-epidemic measures at the headquarters and all outstation offices, such as ensuring the adequacy of anti-epidemic supplies, implementing the work-from-home arrangements, encouraging and arranging for staff to get vaccinated early. To help colleagues improve work-life balance and manage stress, we continued to provide personal counselling hotline service operated by non-governmental organisations (NGOs) and also held eight webinars on mental, emotional and physical health, which were attended by over 1 500 participants.

◀ 機電署員工康樂會四位代表參加首屆機電工程署員工康樂會與政府資訊科技專業人員協會友誼電競足球比賽，眾多同事到場為他們打氣，充分展現團隊精神。Four representatives of the EMSD Staff Club participated in the first FIFA e-sports competition between the EMSD Staff Club and the Government Information Technology Professionals Association. In a show of strong solidarity, a number of colleagues cheered them up on-site.



### 舉辦精彩活動推動員工參與

隨著疫情於2021年下半年有所緩和，我們舉辦了更多員工活動，包括智析「耕」活動。活動有約50名同事參加，他們在總部大樓露天廣場的水耕種植花園，學習運用深水種植法栽種植物。另外我們也舉辦了「電競比賽機電足智盃2.0」，四名優勝者更出線參加首屆機電工程署員工康樂會與政府資訊科技專業人員協會的友誼電競足球比賽。

我們還參加多項體育賽事，包括「愛跑•河上鄉」，乒乓球、籃球和羽毛球比賽，以及「北區室內賽艇錦標賽」。我們又為同事舉辦跑步和龍舟訓練班，潛水和獨木舟課程，網球、保齡球和羽毛球同樂日，以及機電網球友誼賽。同時，我們在疫情反彈期間舉辦「機電喜動2.0」虛擬運動挑戰項目，以及繼續每月舉行深受同事歡迎的「同您ZOOM—ZOOM」線上講座系列，內容更多姿多采，包括有關健康、飲食、運動、生活文化、藝術、園藝和音樂治療等方面的不同主題。

去年推出的「『員』來關你事」項目大受歡迎，有見及此，我們繼續為員工提供有關機電署改善工作流程和其他相關事宜的最新資訊。我們繼續為各部別進行翻新工程，為總部大樓的設施噴灑抗病毒殺菌塗層，並在總部大樓及外設辦事處安裝高效空氣淨化機。此外，我們把總部大樓的35扇門更換為自動門，改善15個無障礙洗手間的通道，方便員工和訪客使用。



### Vibrant Activities for Promoting Staff Engagement

As the epidemic eased in the latter half of 2021, more staff activities were organised, including a hydroponic planting event, which brought around 50 colleagues to the hydroponic garden at our headquarters piazza to learn how to grow plants using deep-water planting methods. In addition, we organised an e-sports soccer competition that took four winners to the first e-sports tournament between the EMSD Staff Club and the Government Information Technology Professionals Association.

We also participated in a variety of sports events, including the Lifewire Run, a table-tennis, a basketball and a badminton tournament, and the North District indoor rowing competition. We also organised running and dragon boat trainings, diving and canoeing classes, tennis, bowling and badminton fun days, as well as a tennis tournament for our colleagues. Meanwhile, we launched the "E&M Move 2.0" virtual sports challenge events during the rebound of the epidemic and continued to hold our very popular monthly webinar series "ZOOM with You", covering more topics in health, diet, sports, lifestyle, arts, gardening and music therapy, among others.

Having regard to the success of the "All You Need to Know!" project in the past year, we continued to update staff on EMSD's workflow improvements and other relevant matters. We continued to carry out refurbishment works at various Divisions, sprayed the facilities in headquarters with an antimicrobial coating and installed high-efficiency air purifiers at the headquarters and outstation offices. We also replaced 35 doors at our headquarters with automatic doors, improving access to 15 barrier-free lavatories for the convenience of our staff and visitors.

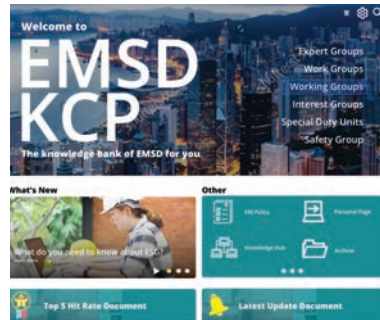


▲ 最受歡迎的線上活動「同您ZOOM—ZOOM」系列主題趨向多元化，涵蓋飲食、生活文化、音樂、運動、藝術及園藝等，讓同事保持身心健康。The themes of the most popular "ZOOM with You" online series become more diversified, covering diet, lifestyle, music, sports, arts, gardening, etc., to help colleagues maintain physical and mental health.

◀ 在2021年下半年疫情緩和，我們為同事舉辦多項活動，例如水耕種植和「聖誕環保家居DIY比賽」等，讓他們輕鬆一下。When the epidemic eased in the second half of 2021, activities such as hydroponic planting and a DIY competition on eco-friendly decoration for Christmas were organised for colleagues to chill out.



## 企業管理 Corporate Stewardship



▲ 為促進同事進行技術交流及鼓勵良性互動，我們根據同事瀏覽及使用網頁的習慣，逐步優化「知識羣體網站」網頁。To facilitate technical exchanges and encourage constructive interaction among colleagues, the webpage of Knowledge Community Portal was enhanced progressively having regard to the browsing and usage habits of the staff.

▼ 機電署三位同事盡忠職守，以竭誠專業的態度服務市民，在2021年獲頒公務員事務局局長嘉許狀。Three EMSD colleagues were awarded the Secretary for the Civil Service's Commendation in 2021 in recognition of their dedication in serving the community with professionalism and perseverance.



知識管理能讓員工緊貼技術和專業知識的最新發展，也能培養部門人員重視知識分享的文化，其重要性無容置疑。我們優化「知識羣體網站」，使瀏覽網頁、登記參加活動、擷取知識和創建新網頁以分享資訊等程序更快捷方便，從而鼓勵同事增加互動交流。

Knowledge management is important to ensuring that our staff keep up with the latest development in technical and professional knowledge and foster a culture of knowledge sharing. We have revamped the Knowledge Community Portal to make browsing, event registration, access to knowledge and the creation of new webpages for information sharing much faster and more user-friendly, thus encouraging more interaction among colleagues.

年內，我們也在內部傳訊活動中加入機電署兩個吉祥物「機智啱啱」和「智析寶寶」，加強與員工之間的溝通，例如舉辦「機智啱啱」聖誕服飾設計大賽，深受同事歡迎。

During the year, we also integrated the EMSD's two mascots, Witty Bear and KnowBot, into our internal communications to better engage the staff. An example was a competition to design a Christmas outfit for Witty Bear, which many colleagues enjoyed.

### 部門內外的獎項

我們一年一度的「品質及安全日」於2021年11月舉行，演講嘉賓就智能工地安全和「建築信息模擬—資產管理」分享真知灼見，大會也向員工團隊頒發獎項，表揚其項目對提升部門工作質素、職業安全 and 健康作出的貢獻。

### Internal and External Awards

Our annual Quality and Safety Day was held in November 2021, with speakers sharing their insights into smart site safety and Building Information Modelling-Asset Management. Prizes were presented to staff teams to recognise projects that contributed to the improvement in the EMSD's performance in quality, occupational safety and health at work.

年內，我們的同事也贏得多個部門以外的獎項。除了機電署24位同事投入抗疫工作貢獻良多，榮獲行政長官公共服務獎狀之外，另有三位同事憑着卓越表現獲頒公務員事務局局長嘉許狀。此外，兩位同事表現出色，獲頒申訴專員嘉許獎。

During the year, our colleagues also received many external awards. In addition to 24 EMSD colleagues who were awarded the Chief Executive's Commendation for Government/Public Service for their significant contribution to the anti-epidemic work, three colleagues were honoured with the Secretary for the Civil Service's Commendation Award for their excellent performance. Moreover, two colleagues received the Ombudsman's Awards for their outstanding work.

機電署在培育人才方面的努力也備受肯定。我們的技術員訓練計劃「SPARK計劃」獲香港管理專業協會頒發2021年最佳管理培訓及發展獎「培訓及發展計劃獎項」銀獎，以及四項特別獎，分別為職涯發展特別獎、未來技能發展特別獎、未來人才發展特別獎，以及業界最喜愛培訓及發展項目。

The EMSD's efforts to nurture talent received recognition too. Our Technician Training Scheme, namely SPARK Programme, has won the silver award in the Campaign Awards category and four special awards, namely Excellence in Career Development, Excellence in Future Skills Development, Excellence in Future Talent Development and HR Professionals' Favourite Campaign, in the Award for Excellence in Training and Development 2021 organised by the Hong Kong Management Association.

機電署三名見習技術員早前在世界技能大賽香港區代表選拔賽「電氣安裝」項目中獲得頭三名次，成功出線代表香港參加於2021年12月在線上舉行的第11屆穗港澳青年技能競賽。在該賽事中勝出的選手接受進一步訓練後，會繼續代表香港參加2022年11月在奧地利舉行的世界技能大賽2022（特別版）。至於同樣來自機電署，在「空調及製冷」項目總決賽中勝出的選手，在接受進一步訓練後，也會代表香港在10月往德國出戰賽事。

Three EMSD technician trainees who had earlier taken the top three prizes in the WorldSkills Hong Kong Competition in the Electrical Installations trade, represented Hong Kong to compete in the 11th Guangzhou/Hong Kong/Macao/Chengdu Youth Skills Competition held online in December 2021. The winner will go on to represent Hong Kong at the WorldSkills Competition 2022 (Special Edition) to be held in Austria in November 2022 after further training. The finalist in the Refrigeration and Air Conditioning trade, also from EMSD, will represent Hong Kong to compete in the WorldSkills Competition in Germany in October too after further training.

我們亦贏得其他獎項，包括發展局與建造業議會合辦的第27屆公德地盤嘉許計劃金獎、銀獎及兩項優異獎。我們也參與建造業議會舉辦的「生命第一」安全推廣活動，展現部門對工地安全的領導方針和承擔，並獲得最積極參與業主獎。

Other accolades included a Gold Award, a Silver Award and two Merit Awards in the 27th Considerate Contractors Site Award Scheme jointly organised by the Development Bureau and Construction Industry Council (CIC). We also participated in CIC's "Life First" Safety Promotional Campaign, demonstrating the EMSD's leadership and commitment to site safety, and received the Most Engaging Client award.



▲► 機電署的技術員訓練計劃「SPARK計劃」榮獲香港管理專業協會頒發2021年最佳管理培訓及發展獎銀獎及四項特別獎，以表揚機電署為培育專業機電人員及提升市民生活質素所付出的努力。The EMSD's Technician Training Scheme, namely SPARK Programme, received a silver award and four special awards in the Award for Excellence in Training and Development 2021 organised by the Hong Kong Management Association in recognition of its commitment to nurturing E&M professionals and improving the quality of life of the public.





## 企業管理 Corporate Stewardship

### 社區參與扶助貧困

#### 支援長者

機電署一直秉持優良傳統，參與義工服務，幫助社會上的弱勢社羣。我們最新於2021年12月推出「機電扶老樂安心」計劃，由部門員工康樂會與多個機電業界組織和非政府機構聯合舉辦。該計劃安排義工為弱勢長者提供電力安全檢查和維修服務。員工康樂會負責統籌工作，機電業界組織提供資源和人力支援，非政府機構則轉介個案。

### COMMUNITY ENGAGEMENT AND HELPING THE NEEDY

#### Supporting the Elderly

The EMSD has a good tradition of providing voluntary community services to help the underprivileged groups in society. The latest example is our “Caring E&M Services for the Elderly” programme launched in December 2021, which was a joint initiative between the EMSD Staff Club and various E&M trade organisations and NGOs. Under the programme, volunteers were arranged to provide electrical safety inspection and maintenance services for the underprivileged elderly. The EMSD Staff Club was responsible for the co-ordination of the programme, with resources and manpower support provided by the E&M trade organisations and cases referred by NGOs.



▲ 醫院管理局行政總裁高拔陸醫生(左四)、機電署署長彭耀雄先生(右四)，以及機電署管理團隊在2021年11月一同出席「樂齡科技博覽暨高峰會」。Dr Ko Pat-sing, Chief Executive of the Hospital Authority (4th left), Mr Pang Yiu-hung, Director of Electrical and Mechanical Services (4th right), and the EMSD senior management attended the Gerontech and Innovation Expo cum Summit in November 2021.



▲ 機電署同事向來賓介紹便利長者日常生活的創科展品。Our colleague introduced to visitors various I&T exhibits that can bring convenience to the daily lives of the elderly.

我們也提倡樂齡科技，並支持其研發與應用工作，讓本港的長者活得更安康。機電署於去年11月參加由政府與香港社會服務聯會合辦的「樂齡科技博覽暨高峰會2021」，並於博覽會上展示如何應用機械人技術，在安老院舍進行物資派送和清潔工作，以減少員工的工作負擔和染疫風險。

We also advocate and support the development and use of gerontechnologies to enable healthy aging for the elderly in Hong Kong. The EMSD participated in the Gerontech and Innovation Expo cum Summit 2021 jointly organised by the Government and the Hong Kong Council of Social Service last November. At the Expo, we showcased the application of robotics in performing delivery and cleaning duties in residential care homes for the elderly to reduce staff workload and the risk of infection.

#### 關心社會

年內，我們繼續推行「好人好事嘉許計劃」，以推廣互相關愛和彼此欣賞的文化，肯定社會服務的價值。根據該計劃，熱心服務社會員工可獲提名及嘉許。2021/22年度共有11項「好人好事」入圍。

#### Reaching Out to the Community

We continued to implement our “Good People, Good Deeds Commendation Scheme” in the year with the aim to foster a culture of care and appreciation and to recognise the value of social service. Under the Scheme, staff were nominated and awarded for their dedicated service to the community. Eleven entries were shortlisted in the 2021/22 contest.

►「機智啤啤」除了現身機電署總部探訪同事外，亦參與學校講座、展覽活動等外展活動，以提升公眾的機電安全意識，以及加深市民對機電署的認識和印象。Apart from visiting colleagues at the EMSD Headquarters, Witty Bear also participated in other outreach activities such as school talks, exhibitions and events to promote the E&M safety awareness of the general public, as well as enhancing their understanding and impression of the EMSD.



◀▲ 機電署吉祥物「機智啤啤」和「智析寶寶」通過社交平台、線上及戶外宣傳活動，加強與公眾的互動，有效推廣各種機電小知識。「機智啤啤」Facebook和Instagram專頁(@emsdwittybear)至今已吸引逾11 000人追蹤最新動態。Witty Bear and KnowBot, the mascots of the EMSD, have strengthened the engagement with the general public through their social media platforms, online and other outdoor promotional activities, in which E&M knowledge and tips were effectively promoted. The Facebook and Instagram pages of Witty Bear (@emsdwittybear) have now attracted more than 11 000 followers.

我們的兩個吉祥物「機智啤啤」和「智析寶寶」首次在社交媒體Facebook和Instagram亮相，協助向公眾宣傳機電署的訊息，增加我們與市民的互動。此外，我們委派「機智啤啤」參與外展計劃，包括出席學校講座、展覽和活動等。我們的吉祥物年內已造訪多間幼稚園及小學，向年輕一代宣傳機電安全及能源效益。

Our two mascots, Witty Bear and KnowBot, debuted on the social media, including Facebook and Instagram, helping to share the EMSD's messages with the public, and strengthening our engagement with the community. In addition, we have deployed Witty Bear to participate in outreach programmes such as school talks, exhibitions and events. Our mascot made visits to various kindergartens and primary schools during the year to promote E&M safety and energy efficiency to the younger generation.

其他社區服務方面，我們的義工參加建造業運動及義工計劃下的「建造業海岸清潔日2021」，同事及其親友在2021年7月一個周末前往大嶼山大浪灣清潔海灘。我們亦於2021年12月在中電愛跳舞計劃下舉辦一場跳舞活動，義工透過跳舞推廣節約能源，同時亦讓中電為有需要的人提供電費資助。另外，在2022年1月至2月期間，同事在公餘時間抽空編織了超過75條圍巾和冷帽捐贈給長者，在寒冬下送暖。

For other community services, our volunteers participated in the Construction Industry Shoreline Clean-up Day 2021 under the Construction Industry Sports & Volunteering Programme, where colleagues and their families and friends cleaned up the beach at Tai Long Wan on Lantau Island on a weekend in July 2021. We also organised a dancing session under the CLP We Love Dance programme in December 2021, where our volunteers promoted energy saving through dancing, and at the same time, allowed CLP Power to provide electricity subsidies to people in need. Furthermore, between January and February 2022, colleagues contributed their own time and knitted over 75 scarves and hats for donation to the elderly, bringing them warmth during the cold winter days.

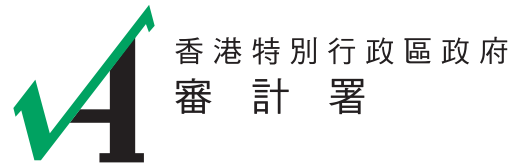
待疫情進一步緩和，我們的義工團隊會恢復其他社會服務，繼續為市民服務。

Once the epidemic further eases, our volunteers will resume other community services to serve the public once again.



# 審計署署長報告

## Report of the Director of Audit



香港特別行政區政府  
審計署

### 獨立審計師報告

#### 致立法會

#### 意見

茲證明我已審核及審計列載於第 71 至 96 頁機電工程營運基金的財務報表，該等財務報表包括於 2022 年 3 月 31 日的財務狀況表與截至該日止年度的全面收益表、權益變動表和現金流量表，以及財務報表的附註，包括主要會計政策概要。

我認為，該等財務報表已按照香港會計師公會頒布的《香港財務報告準則》真實而中肯地反映機電工程營運基金於 2022 年 3 月 31 日的狀況及截至該日止年度的運作成果及現金流量，並已按照《營運基金條例》（第 430 章）第 7(4) 條所規定的方式妥為擬備。

#### 意見的基礎

我已按照《營運基金條例》第 7(5) 條及審計署的審計準則進行審計。我根據該等準則而須承擔的責任，詳載於本報告「審計師就財務報表審計而須承擔的責任」部分。根據該等準則，我獨立於機電工程營運基金，並已按該等準則履行其他道德責任。我相信，我所獲得的審計憑證是充足和適當地為我的審計意見提供基礎。

## Audit Commission The Government of the Hong Kong Special Administrative Region

### INDEPENDENT AUDITOR'S REPORT

#### To the Legislative Council

#### Opinion

I certify that I have examined and audited the financial statements of the Electrical and Mechanical Services Trading Fund set out on pages 71 to 96, which comprise the statement of financial position as at 31 March 2022, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the state of affairs of the Electrical and Mechanical Services Trading Fund as at 31 March 2022, and of its results of operations and cash flows for the year then ended in accordance with Hong Kong Financial Reporting Standards ("HKFRSs") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA") and have been properly prepared in accordance with the manner provided in section 7(4) of the Trading Funds Ordinance (Cap. 430).

#### Basis for opinion

I conducted my audit in accordance with section 7(5) of the Trading Funds Ordinance and the Audit Commission auditing standards. My responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the financial statements* section of my report. I am independent of the Electrical and Mechanical Services Trading Fund in accordance with those standards, and I have fulfilled my other ethical responsibilities in accordance with those standards. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

# 審計署署長報告

## Report of the Director of Audit

### 機電工程營運基金總經理就財務報表須承擔的責任

機電工程營運基金總經理須負責按照香港會計師公會頒布的《香港財務報告準則》及《營運基金條例》第 7(4) 條擬備真實而中肯的財務報表，及落實其認為必要的內部控制，使財務報表不存有因欺詐或錯誤而導致的重大錯誤陳述。

在擬備財務報表時，機電工程營運基金總經理須負責評估機電工程營運基金持續經營的能力，以及在適用情況下披露與持續經營有關的事項，並以持續經營作為會計基礎。

### 審計師就財務報表審計而須承擔的責任

我的目標是就整體財務報表是否不存有任何因欺詐或錯誤而導致的重大錯誤陳述取得合理保證，並發出包括我意見的審計師報告。合理保證是高水平的保證，但不能確保按審計署審計準則進行的審計定能發現所存有的任何重大錯誤陳述。錯誤陳述可以由欺詐或錯誤引起，如果合理預期它們個別或滙總起來可能影響財務報表使用者所作出的經濟決定，則會被視作重大錯誤陳述。

在根據審計署審計準則進行審計的過程中，我會運用專業判斷並秉持專業懷疑態度。我亦會：

- 識別和評估因欺詐或錯誤而導致財務報表存有重大錯誤陳述的風險；設計及執行審計程序以應對這些風險；以及取得充足和適當的審計憑證，作為我意見的基礎。由於欺詐可能涉及串謀、偽造、蓄意遺漏、虛假陳述，或凌駕內部控制的情況，因此未能發現因欺詐而導致重大錯誤陳述的風險，較未能發現因錯誤而導致者為高；
- 了解與審計相關的內部控制，以設計適當的審計程序。然而，此舉並非旨在對機電工程營運基金內部控制的有效性發表意見；

### Responsibilities of the General Manager, Electrical and Mechanical Services Trading Fund for the financial statements

The General Manager, Electrical and Mechanical Services Trading Fund is responsible for the preparation of financial statements that give a true and fair view in accordance with HKFRSs issued by the HKICPA and section 7(4) of the Trading Funds Ordinance, and for such internal control as the General Manager, Electrical and Mechanical Services Trading Fund determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the General Manager, Electrical and Mechanical Services Trading Fund is responsible for assessing the Electrical and Mechanical Services Trading Fund's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting.

### Auditor's responsibilities for the audit of the financial statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Audit Commission auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the Audit Commission auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Electrical and Mechanical Services Trading Fund's internal control;



審計署署長報告  
Report of the Director of Audit

審計師就財務報表審計而須承擔的責任 (續)

- 評價機電工程營運基金總經理所採用的會計政策是否恰當，以及其作出的會計估計和相關資料披露是否合理；
- 判定機電工程營運基金總經理以持續經營作為會計基礎的做法是否恰當，並根據所得的審計憑證，判定是否存在與事件或情況有關，而且可能對機電工程營運基金持續經營的能力構成重大疑慮的重大不確定性。如果我認為存在重大不確定性，則有必要在審計師報告中請使用者留意財務報表中的相關資料披露。假若所披露的相關資料不足，我便須發出非無保留意見的審計師報告。我的結論是基於截至審計師報告日止所取得的審計憑證。然而，未來事件或情況可能導致機電工程營運基金不能繼續持續經營；及
- 評價財務報表的整體列報方式、結構和內容，包括披露資料，以及財務報表是否中肯反映交易和事項。

我與機電工程營運基金總經理溝通計劃的審計範圍和時間以及重大審計發現等事項，包括我在審計期間識別出內部控制的任何重大缺陷。

審計署署長  
(審計署助理署長陳瑞蘭  
代行)

審計署  
香港  
金鐘道66號  
金鐘道政府合署  
高座6樓

2022年9月26日

Auditor's responsibilities for the audit of the financial statements (continued)

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the General Manager, Electrical and Mechanical Services Trading Fund;
- conclude on the appropriateness of the General Manager, Electrical and Mechanical Services Trading Fund's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Electrical and Mechanical Services Trading Fund's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Electrical and Mechanical Services Trading Fund to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with the General Manager, Electrical and Mechanical Services Trading Fund regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Hildy Chan  
Assistant Director of Audit  
for Director of Audit

Audit Commission  
6th Floor, High Block  
Queensway Government Offices  
66 Queensway  
Hong Kong

26 September 2022

全面收益表  
Statement of Comprehensive Income

截至2022年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2022  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2022	2021
來自客戶合約之收入	(4)	8,718,993	8,577,821
運作成本	(5)	(8,464,185)	(8,378,799)
運作盈利		254,808	199,022
其他收入	(6)	312,350	219,541
年度盈利		567,158	418,563
其他全面收益		—	—
年度總全面收益		567,158	418,563
固定資產回報率	(7)	18.2%	15.4%

第76至96頁的附註為  
本財務報表的一部分。

The notes on pages 76 to 96 form part of these financial statements.



# 財務狀況表

## Statement of Financial Position

於 2022 年 3 月 31 日  
(以港幣千元位列示)

as at 31 March 2022  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2022	2021
<b>非流動資產</b>	<b>Non-current assets</b>			
物業、設備及器材	Property, plant and equipment	(8)	1,281,766	1,252,845
使用權資產	Right-of-use assets	(9(a))	64,844	52,380
無形資產	Intangible assets	(10)	154,670	110,716
外匯基金存款	Placement with the Exchange Fund	(11)	5,000,000	5,000,000
			6,501,280	6,415,941
<b>流動資產</b>	<b>Current assets</b>			
存貨	Inventories		68,419	65,639
外匯基金存款	Placement with the Exchange Fund	(11)	1,445,529	1,156,188
應收帳款及其他應收款項	Trade and other receivables	(12), (13(a))	94,862	73,891
應收關連人士帳款	Amounts due from related parties	(13(a)), (21)	392,783	370,278
銀行存款	Bank deposits		3,470,000	2,590,000
現金及銀行結餘	Cash and bank balances		11,346	12,948
			5,482,939	4,268,944
<b>流動負債</b>	<b>Current liabilities</b>			
客戶按金	Customers' deposits	(14)	(1,770,269)	(1,552,553)
應付帳款及其他應付款項	Trade and other payables		(1,279,510)	(978,591)
應付關連人士帳款	Amounts due to related parties	(21)	(201,068)	(203,262)
租賃負債	Lease liabilities	(9(b))	(14,582)	(13,090)
僱員福利撥備	Provision for employee benefits	(15)	(88,001)	(83,543)
遞延收入	Deferred revenue	(13(b))	(1,138,054)	(844,196)
			(4,491,484)	(3,675,235)
<b>流動資產淨額</b>	<b>Net current assets</b>		991,455	593,709
<b>總資產減去流動負債</b>	<b>Total assets less current liabilities</b>		7,492,735	7,009,650
<b>非流動負債</b>	<b>Non-current liabilities</b>			
租賃負債	Lease liabilities	(9(b))	(50,565)	(39,771)
僱員福利撥備	Provision for employee benefits	(15)	(474,581)	(486,600)
			(525,146)	(526,371)
<b>資產淨額</b>	<b>NET ASSETS</b>		6,967,589	6,483,279

# 財務狀況表

## Statement of Financial Position

於 2022 年 3 月 31 日  
(以港幣千元位列示)

as at 31 March 2022  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2022	2021
<b>資本及儲備</b>	<b>CAPITAL AND RESERVES</b>			
營運基金資本	Trading fund capital	(16)	706,600	706,600
保留盈利	Retained earnings	(17)	6,260,989	5,776,679
			6,967,589	6,483,279

第 76 至 96 頁的附註為本財務報表的一部分。

The notes on pages 76 to 96 form part of these financial statements.

彭耀雄

總經理

機電工程營運基金

PANG YIU HUNG

General Manager

Electrical and Mechanical Services Trading Fund

2022 年 9 月 26 日

26 September 2022



## 權益變動表

### Statement of Changes in Equity

截至2022年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2022  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2022	2021
在年初的結餘		<b>6,483,279</b>	6,138,207
年度總全面收益		<b>567,158</b>	418,563
政府法定回報	(17)	<b>(82,848)</b>	(73,491)
在年終的結餘		<b>6,967,589</b>	6,483,279

第76至96頁的附註為  
本財務報表的一部分。

The notes on pages 76 to 96 form part of these financial statements.

## 現金流量表

### Statement of Cash Flows

截至2022年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2022  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2022	2021
<b>營運活動的現金流量</b>			
運作盈利		<b>254,808</b>	199,022
折舊及攤銷		<b>209,444</b>	165,401
租賃負債的利息支出		<b>506</b>	541
出售物業、設備及器材和無形資產的虧損/(收益)		<b>416</b>	(64)
存貨的(增加)/減少		<b>(2,780)</b>	2,221
應收帳款及其他應收款項的增加		<b>(2,585)</b>	(962)
應收關連人士帳款的(增加)/減少		<b>(22,505)</b>	18,272
客戶按金的增加/(減少)		<b>217,716</b>	(37,656)
應付帳款及其他應付款項的增加/(減少)		<b>300,919</b>	(230,015)
應付關連人士帳款的減少		<b>(2,194)</b>	(100,840)
僱員福利撥備的(減少)/增加		<b>(7,561)</b>	8,755
遞延收入的增加/(減少)		<b>293,858</b>	(296,999)
<b>來自/(用於)營運活動的現金淨額</b>		<b>1,240,042</b>	(272,324)
<b>投資活動的現金流量</b>			
原有期限為3個月以上的銀行存款的減少		<b>–</b>	3,730,000
購買物業、設備及器材和無形資產		<b>(268,639)</b>	(292,121)
出售物業、設備及器材所得		<b>329</b>	101
外匯基金存款的增加		<b>(289,341)</b>	(2,150,047)
已收利息		<b>293,964</b>	199,326
<b>(用於)/來自投資活動的現金淨額</b>		<b>(263,687)</b>	1,487,259
<b>融資活動的現金流量</b>			
已付政府法定回報		<b>(82,848)</b>	(259,383)
支付租賃負債	(9(b))	<b>(15,109)</b>	(12,025)
<b>用於融資活動的現金淨額</b>		<b>(97,957)</b>	(271,408)
<b>現金及等同現金的增加淨額</b>		<b>878,398</b>	943,527
在年初的現金及等同現金		<b>1,922,948</b>	979,421
在年終的現金及等同現金	(18)	<b>2,801,346</b>	1,922,948

第76至96頁的附註為  
本財務報表的一部分。

The notes on pages 76 to 96 form part of these financial statements.



# 財務報表附註

## Notes to the Financial Statements

(除另有註明外，所有金額均以港幣千元位列示)

(Amounts expressed in thousands of Hong Kong dollars, unless otherwise stated)

### 1 總論

前立法局在1996年6月26日根據《營運基金條例》(第430章)第3、4及6條通過決議，在1996年8月1日成立機電工程營運基金(「基金」)，為客戶提供全面的機電及電子工程服務、車輛工程服務，以及工程及顧問服務。

政府各決策局、各部門及各自主機構均可自由選擇採用本基金或其他服務機構的服務，以切合他們部分或全部的機電服務需要。

### GENERAL

The Electrical and Mechanical Services Trading Fund (the Fund) was established on 1 August 1996 under the Legislative Council Resolution passed on 26 June 1996 pursuant to sections 3, 4 and 6 of the Trading Funds Ordinance (Cap. 430) to provide comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to clients.

Government bureaux, departments and autonomous bodies have the freedom to use the services of the Fund or to choose alternative service providers to meet part or all of their electrical and mechanical service needs.

## 2 主要會計政策

### 2.1 符合準則聲明

本財務報表是按照香港公認的會計原則及香港財務報告準則(此詞是統稱，當中包括香港會計師公會頒布的所有適用的個別香港財務報告準則、香港會計準則及詮釋)編製。基金採納的主要會計政策摘要如下。

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效或可供提前採納。基金因首度採納其中適用的準則而引致本會計期及前會計期的會計政策改變(如有)已反映在本財務報表，有關資料載於附註3。

### 2.2 編製財務報表的基準

本財務報表的編製基準均以原值成本法計量。

編製符合香港財務報告準則的財務報表需要管理層作出判斷、估計及假設。該等判斷、估計及假設會影響會計政策的實施，以及資產、負債、收入與支出的呈報款額。該等估計及相關的假設，均按以往經驗及其他在有關情況下被認為合適的因素而制訂。倘若沒有其他現成數據可供參考，則會採用該等估計及假設作為判斷有關資產及負債的帳面值的基準。估計結果或會與實際價值有所不同。

## SIGNIFICANT ACCOUNTING POLICIES

### Statement of compliance

These financial statements have been prepared in accordance with accounting principles generally accepted in Hong Kong and Hong Kong Financial Reporting Standards (HKFRSs), a collective term which includes all applicable individual HKFRSs, Hong Kong Accounting Standards and Interpretations issued by the Hong Kong Institute of Certified Public Accountants (HKICPA). A summary of the significant accounting policies adopted by the Fund is set out below.

The HKICPA has issued certain new or revised HKFRSs that are first effective or available for early adoption for the current accounting period of the Fund. Note 3 provides information on the changes, if any, in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Fund for the current and prior accounting periods reflected in these financial statements.

### Basis of preparation of the financial statements

The measurement basis used in the preparation of these financial statements is historical cost.

The preparation of financial statements in conformity with HKFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

# 財務報表附註

## Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.2 編製財務報表的基準 (續)

該等估計及其所依據的假設會作持續檢討。如修訂會計估計只影響修訂期，有關修訂會在該修訂期內確認；如修訂影響本會計期及未來的會計期，則會在修訂期及未來的會計期內確認。

基金在實施會計政策方面並不涉及任何關鍵的會計判斷。無論對未來作出的假設，或在報告日估計過程中所存在的不明朗因素，皆不足以構成重大風險，導致資產和負債的帳面金額在來年大幅修訂。

### 2.3 金融資產及金融負債

#### 2.3.1 初始確認及計量

基金的金融資產包括外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款，以及現金及銀行結餘。

基金的金融負債包括客戶按金、應付帳款及其他應付款項、應付關連人士帳款、租賃負債，以及僱員福利撥備。

基金在成為有關金融工具的合約其中一方之日確認有關金融資產及金融負債。於初始確認時，金融資產及金融負債按公平值計量，再加上或減去因收購該等金融資產或發行該等金融負債而直接引致的交易成本。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Basis of preparation of the financial statements (continued)

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

There are no critical accounting judgements involved in the application of the Fund's accounting policies. There are also no key assumptions concerning the future, or other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities in the next year.

### Financial assets and financial liabilities

#### Initial recognition and measurement

The Fund's financial assets comprise placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits, and cash and bank balances.

The Fund's financial liabilities comprise customers' deposits, trade and other payables, amounts due to related parties, lease liabilities and provision for employee benefits.

The Fund recognises financial assets and financial liabilities on the date it becomes a party to the contractual provisions of the instrument. At initial recognition, financial assets and financial liabilities are measured at fair value plus or minus transaction costs that are directly attributable to the acquisition of the financial assets or the issue of the financial liabilities.



## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.3 金融資產及金融負債 (續)

#### 2.3.2 分類及其後計量

基金將其所有金融資產分類為其後以實際利率法按攤銷成本值計量，因為有關金融資產以收取合約現金流為目的的業務模式而持有，且合約現金流僅為所支付的本金及利息。金融資產的虧損準備根據附註2.3.4所述的預期信用虧損模型計量。

實際利率法是計算金融資產或金融負債的攤銷成本值，以及攤分及確認有關期間的利息收入或支出的方法。實際利率是指可將該金融資產或金融負債在有效期間內的預計現金收支，折現成該金融資產的帳面總值或該金融負債的攤銷成本值所適用的貼現率。基金在計算實際利率時，會考慮該金融工具的所有合約條款以估計現金流量，但不會計及預期信用虧損。有關計算包括與實際利率相關的所有收取自或支付予合約各方的費用、交易成本及所有其他溢價或折讓。

基金將其所有金融負債分類為其後以實際利率法按攤銷成本值計量。

基金僅在管理某金融資產的業務模式出現變動時，才將有關資產重新分類。金融負債不作重新分類。

#### 2.3.3 註銷確認

當從金融資產收取現金流量的合約權利屆滿時，或該金融資產連同擁有權的絕大部分風險及回報已轉讓時，該金融資產會被註銷確認。

當合約指明的債務被解除或取消，或到期時，該金融負債會被註銷確認。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Financial assets and financial liabilities (continued)

#### Classification and subsequent measurement

The Fund classifies all financial assets as subsequently measured at amortised cost using the effective interest method, on the basis that they are held within a business model whose objective is to hold them for collection of contractual cash flows and the contractual cash flows represent solely payments of principal and interest. The measurement of loss allowances for financial assets is based on the expected credit loss model as described in note 2.3.4.

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability and of allocating and recognising the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts or payments through the expected life of the financial asset or financial liability to the gross carrying amount of the financial asset or to the amortised cost of the financial liability. When calculating the effective interest rate, the Fund estimates the expected cash flows by considering all contractual terms of the financial instrument but does not consider the expected credit losses. The calculation includes all fees received or paid between parties to the contract that are an integral part of the effective interest rate, transaction costs and all other premiums or discounts.

The Fund classifies all financial liabilities as subsequently measured at amortised cost using the effective interest method.

The Fund reclassifies a financial asset when and only when it changes its business model for managing the asset. A financial liability is not reclassified.

#### Derecognition

A financial asset is derecognised when the contractual rights to receive the cash flows from the financial asset expire, or where the financial asset together with substantially all the risks and rewards of ownership have been transferred.

A financial liability is derecognised when the obligation specified in the contract is discharged or cancelled, or when it expires.

## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.3 金融資產及金融負債 (續)

#### 2.3.4 金融資產減值

基金就按攤銷成本值計量的金融資產（應收帳款除外）採用由3個階段組成的方法計量預期信用虧損及確認相應的虧損準備及減值虧損或回撥，預期信用虧損的計量基礎取決於自初始確認以來的信用風險變化：

第1階段：12個月預期信用虧損

若自初始確認以來，金融工具的信用風險並無大幅增加，全期預期信用虧損中反映在報告日後12個月內可能發生的違約事件引致的預期信用虧損的部分予以確認。

第2階段：全期預期信用虧損 — 非信用減值

若自初始確認以來，金融工具的信用風險大幅增加，但並非信用減值，全期預期信用虧損（反映在金融工具的預期有效期內所有可能出現的違約事件引致的預期信用虧損）予以確認。

第3階段：全期預期信用虧損 — 信用減值

若金融工具已視作信用減值，會確認全期預期信用虧損，利息收入則應用實際利率計入攤銷成本值而非帳面值總額計算。

應收帳款的虧損準備一直按相等於全期預期信用虧損的金額計量。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Financial assets and financial liabilities (continued)

#### Impairment of financial assets

The Fund applies a three-stage approach to measure expected credit losses on financial assets (other than trade receivables) measured at amortised cost and to recognise the corresponding loss allowances and impairment losses or reversals, with the change in credit risk since initial recognition determining the measurement bases for expected credit losses:

Stage 1: 12-month expected credit losses

For financial instruments for which there has not been a significant increase in credit risk since initial recognition, the portion of the lifetime expected credit losses that represent the expected credit losses that result from default events that are possible within the 12 months after the reporting date are recognised.

Stage 2: Lifetime expected credit losses — not credit impaired

For financial instruments for which there has been a significant increase in credit risk since initial recognition but that are not credit impaired, lifetime expected credit losses representing the expected credit losses that result from all possible default events over the expected life of the financial instruments are recognised.

Stage 3: Lifetime expected credit losses — credit impaired

For financial instruments that have become credit impaired, lifetime expected credit losses are recognised and interest income is calculated by applying the effective interest rate to the amortised cost rather than the gross carrying amount.

Loss allowances for trade receivables are always measured at an amount equal to lifetime expected credit losses.



# 財務報表附註

## Notes to the Financial Statements

### 2 主要會計政策 (續)

#### 2.3 金融資產及金融負債 (續)

##### 2.3.4 金融資產減值 (續)

如何釐定信用風險大幅增加

在每個報告日，基金藉比較金融工具於報告日及於初始確認日期在餘下的預期有效期內出現違約的風險，以評估金融工具的信用風險有否大幅增加。有關評估會考慮數量及質量歷史資料，以及具前瞻性的資料。若發生一項或多於一項對某金融資產的估計未來現金流量有不利影響的事件，該金融資產會被評定為信用減值。

基金在個別或綜合基準上評估自初始確認以來信用風險有否大幅增加。就綜合評估而言，金融工具按共同信用風險特質的基準歸類，並考慮投資類別、信用風險評級及其他相關因素。

外部信用評級為投資級別的銀行存款被視為屬低信用風險。其他金融工具若其違約風險低，且交易對手或借款人具備雄厚實力在短期內履行其合約現金流量責任，會被視為屬低信用風險。此等金融工具的信用風險會被評定為自初始確認以來並無大幅增加。

若金融資產無法收回，該金融資產會與相關虧損準備撇銷。該等資產在完成所有必要程序及釐定虧損金額後撇銷。其後收回先前被撇銷的金額會在全面收益表內確認。

### SIGNIFICANT ACCOUNTING POLICIES (continued)

#### Financial assets and financial liabilities (continued)

##### Impairment of financial assets (continued)

*Determining significant increases in credit risk*

At each reporting date, the Fund assesses whether there has been a significant increase in credit risk for financial instruments since initial recognition by comparing the risk of default occurring over the remaining expected life as at the reporting date with that as at the date of initial recognition. The assessment considers quantitative and qualitative historical information as well as forward-looking information. A financial asset is assessed to be credit impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The Fund assesses whether there has been a significant increase in credit risk since initial recognition on an individual or collective basis. For collective assessment, financial instruments are grouped on the basis of shared credit risk characteristics, taking into account investment type, credit risk ratings and other relevant factors.

Placements with banks with an external credit rating of investment grade are considered to have a low credit risk. Other financial instruments are considered to have a low credit risk if they have a low risk of default and the counterparty or borrower has a strong capacity to meet its contractual cash flow obligations in the near term. The credit risk on these financial instruments is assessed as not having increased significantly since initial recognition.

When a financial asset is uncollectible, it is written off against the related loss allowance. Such assets are written off after all the necessary procedures have been completed and the amount of the loss has been determined. Subsequent recoveries of amounts previously written off are recognised in the statement of comprehensive income.

# 財務報表附註

## Notes to the Financial Statements

### 2 主要會計政策 (續)

#### 2.3 金融資產及金融負債 (續)

##### 2.3.4 金融資產減值 (續)

計量預期信用虧損

金融工具的預期信用虧損是對該金融工具在預期有效期內的公平及經概率加權估計的信用虧損（即所有短缺現金的現值）。短缺現金為按照合約應付予基金的現金流量與基金預期會收到的現金流量兩者間的差距。若金融資產在報告日視作信用減值，基金根據該資產的帳面值總額與以折現方式按該資產的原訂實際利率計算的估計未來現金流量的現值兩者間的差距計量預期信用虧損。

#### 2.4 物業、設備及器材

於1996年8月1日撥歸基金的物業、設備及器材，最初的成本值是按前立法局所通過成立基金的決議中所列的估值入帳。自1996年8月1日起購置的物業、設備及器材均按購入價入帳。

以下物業、設備及器材以成本值扣除累計折舊及任何減值虧損列帳(附註2.7)：

- 建築物；以及
- 設備及器材，包括電腦器材、車輛、傢具及固定裝置，以及其他器材。

折舊是按照物業、設備及器材的估計可使用年期，以直線法攤銷扣除估計剩餘值後的成本值。有關的估計可使用年期如下：

- |           |           |
|-----------|-----------|
| — 建築物     | 10 – 35 年 |
| — 電腦器材    | 4 – 20 年  |
| — 車輛      | 5 – 9 年   |
| — 傢具及固定裝置 | 5 – 7 年   |
| — 其他器材    | 5 – 20 年  |

基金的建築物所在的土地視為非折舊資產。

出售物業、設備及器材的損益以出售所得淨額與資產的帳面值之間的差額來決定，並在出售日於全面收益表內確認。

### SIGNIFICANT ACCOUNTING POLICIES (continued)

#### Financial assets and financial liabilities (continued)

##### Impairment of financial assets (continued)

*Measurement of expected credit losses*

Expected credit losses of a financial instrument are an unbiased and probability-weighted estimate of credit losses (i.e. the present value of all cash shortfalls) over the expected life of the financial instrument. A cash shortfall is the difference between the cash flows due to the Fund in accordance with the contract and the cash flows that the Fund expects to receive. For a financial asset that is credit impaired at the reporting date, the Fund measures the expected credit losses as the difference between the asset's gross carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate.

#### Property, plant and equipment

Property, plant and equipment appropriated to the Fund on 1 August 1996 were measured initially at deemed cost equal to the value contained in the Legislative Council Resolution for the setting up of the Fund. Property, plant and equipment acquired since 1 August 1996 are capitalised at their costs of acquisition.

The following property, plant and equipment are stated at cost less accumulated depreciation and any impairment losses (note 2.7):

- buildings; and
- plant and equipment, including computer equipment, motor vehicles, furniture and fixtures, and other equipment.

Depreciation is calculated to write off the cost of property, plant and equipment, less their estimated residual value, on a straight-line basis over their estimated useful lives as follows:

- |                          |               |
|--------------------------|---------------|
| — Buildings              | 10 – 35 years |
| — Computer equipment     | 4 – 20 years  |
| — Motor vehicles         | 5 – 9 years   |
| — Furniture and fixtures | 5 – 7 years   |
| — Other equipment        | 5 – 20 years  |

The land on which the Fund's buildings are situated is regarded as a non-depreciating asset.

Gains or losses arising from the disposal of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognised in the statement of comprehensive income on the date of disposal.



## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.5 租賃

租賃會於其生效日在財務狀況表內確認為使用權資產及相應的租賃負債，惟涉及租賃期為12個月或以下的短期租賃及低價值資產租賃的相關款項會在租賃期內以直線法計入全面收益表。

使用權資產會按成本值扣除累計折舊及減值虧損計量（附註2.7）。該使用權資產按租賃期及資產的估計可使用年期兩者中的較短者以直線法折舊。

租賃負債按在租賃期應支付的租賃款項的現值計量，並以租賃隱含利率折現，或如該利率未能確定，則以基金的遞增借款利率折現。租賃負債其後按租賃負債計提的利息與所支付的租賃款項，及任何源於租賃負債重估或租賃修改的重新計量作調整。

### 2.6 無形資產

無形資產包括購入的電腦軟件牌照及已資本化的電腦軟件程式開發成本值。若電腦軟件程式在技術上可行，而基金有足夠資源及有意完成開發工作，有關的開發費用會被資本化。無形資產按成本值扣除累計攤銷及任何減值虧損列帳（附註2.7）。

無形資產的攤銷按估計可使用年期（4至20年）以直線法列入全面收益表。

### 2.7 非金融資產的減值

非金融資產（包括物業、設備及器材、使用權資產和無形資產）的帳面值在每個報告日評估，以確定有否出現減值跡象。若有減值跡象而資產的帳面值高於其可收回數額時，則有關減值虧損會在全面收益表內確認。資產的可收回數額為其公平值減出售成本與使用值兩者中的較高者。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Leases

A lease is recognised in the statement of financial position as a right-of-use asset with a corresponding lease liability at the lease commencement date, except that payments associated with short-term leases having a lease term of 12 months or less and leases of low-value assets are charged to the statement of comprehensive income on a straight-line basis over the lease term.

A right-of-use asset is measured at cost less accumulated depreciation and impairment losses (note 2.7). The right-of-use asset is depreciated on a straight-line basis over the shorter of the lease term and the asset's estimated useful life.

The lease liability is measured at the present value of the lease payments payable over the lease term, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Fund's incremental borrowing rate. The lease liability is subsequently adjusted by the effect of the interest on and the settlement of the lease liability, and the remeasurement arising from any reassessment of the lease liability or lease modification.

### Intangible assets

Intangible assets include acquired computer software licences and capitalised development costs of computer software programmes. Expenditure on development of computer software programmes is capitalised if the programmes are technically feasible and the Fund has sufficient resources and the intention to complete development. Intangible assets are stated at cost less accumulated amortisation and any impairment losses (note 2.7).

Amortisation of intangible assets is charged to the statement of comprehensive income on a straight-line basis over the assets' estimated useful lives of 4 to 20 years.

### Impairment of non-financial assets

The carrying amounts of non-financial assets, including property, plant and equipment, right-of-use assets and intangible assets, are reviewed at each reporting date to identify any indication of impairment. If there is an indication of impairment, an impairment loss is recognised in the statement of comprehensive income whenever the carrying amount of an asset exceeds its recoverable amount. The recoverable amount of an asset is the higher of its fair value less costs of disposal and value in use.

## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.8 存貨

存貨是提供服務所需的材料。它們是以成本值與可實現淨值之中較低者列帳，成本值是以加權平均成本法計算。所有存貨虧損及撇帳至可實現淨值的虧損會在虧損發生時確認為當期的一項開支。

提供服務時被支用的存貨，其帳面值會於確認其相關收入的同一期間確認為一項開支。

### 2.9 等同現金

等同現金指短期及流通性高的投資，該等項目在購入時距期滿日不超過3個月，並隨時可轉換為已知數額的現金，而其價值變動的風險不大。

### 2.10 遞延收入

在基金移轉服務予客戶前，若客戶支付代價，或基金具有無條件限制的代價收款權，基金會將其合約負債確認為遞延收入。基金在移轉服務以履行其履約責任時，會註銷確認遞延收入，並就收入加以確認。

### 2.11 僱員福利

基金的僱員包括公務員及合約員工。薪金、約滿酬金及年假開支均在僱員提供有關服務所在年度以應計基準確認入帳。就公務員而言，僱員附帶福利開支包括香港特別行政區政府（「政府」）給予僱員的退休金及房屋福利，均在僱員提供有關服務所在年度支銷。

就按可享退休金條款受聘的公務員的長俸負債已包括於支付予政府有關附帶福利開支中。就其他員工向強制性公積金計劃的供款於全面收益表內支銷。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Inventories

Inventories are materials to be consumed in the rendering of services. They are stated at the lower of cost and net realisable value, cost being determined using the weighted average cost method. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period in which the write-down or loss occurs.

When inventories are consumed in the rendering of services, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised.

### Cash equivalents

Cash equivalents are short-term highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value, having been within three months of maturity at the date of acquisition.

### Deferred revenue

If a customer pays consideration, or the Fund has an unconditional right to consideration, before the Fund transfers a service to the customer, the Fund recognises its contract liability as deferred revenue. The Fund derecognises the deferred revenue and recognises revenue when the Fund transfers the service and, therefore, satisfies its performance obligation.

### Employee benefits

The employees of the Fund comprise civil servants and contract staff. Salaries, staff gratuities and annual leave entitlements are accrued and recognised as expenditure in the year in which the associated services are rendered by the staff. For civil servants, staff on-costs, including pensions and housing benefits provided to the staff by the Government of the Hong Kong Special Administrative Region (the Government), are charged as expenditure in the year in which the associated services are rendered.

For civil servants employed on pensionable terms, their pension liabilities are discharged by reimbursement of the staff on-costs charged by the Government. For other staff, contributions to the Mandatory Provident Fund Scheme are charged to the statement of comprehensive income as incurred.



# 財務報表附註

## Notes to the Financial Statements

### 2 主要會計政策 (續)

#### 2.12 收入的確認

基金會在向客戶移轉所承諾的服務以履行其履約責任時，按基金預期就交換該項服務所應得代價的金額，確認客戶合約的收入。

利息收入按實際利率法以應計方式確認。

#### 2.13 外幣換算

本年度的外幣交易按交易日的現貨匯率換算為港元。以非港元為單位的貨幣資產及負債按報告日的收市匯率換算為港元。外幣換算產生的匯兌收益及虧損會在全面收益表中確認。

#### 2.14 撥備及或有負債

如基金須就已發生的事件承擔法律或推定責任，而又可能需要付出經濟代價以履行該項責任，基金會在能夠可靠地估計涉及的金額時，為該項在時間上或金額上尚未確定的責任撥備。如金錢的時間價值重大，則會按預計履行該項責任所需開支的現值作出撥備。

若承擔有關責任可能無須付出經濟代價或是無法可靠地估計涉及的金額，該責任便會以或有負債的形式披露，除非須付出經濟代價的可能性極低。至於只能由日後是否發生某宗或多宗事件才確定會否出現的或然責任，亦會以或有負債的形式披露，除非須付出經濟代價的可能性極低。

#### 2.15 關連人士

基金是根據《營運基金條例》成立，並屬政府轄下的一個獨立會計單位。年內，基金在日常業務中曾與各關連人士進行交易。這些關連人士包括政府各決策局及部門、其他營運基金，以及受政府所管制或政府對其有重大影響力的財政自主機構。

### SIGNIFICANT ACCOUNTING POLICIES (continued)

#### Revenue recognition

The Fund recognises revenue from contracts with customers when it satisfies a performance obligation by transferring a promised service to a customer, at the amount of consideration to which the Fund expects to be entitled in exchange for the service.

Interest income is recognised as it accrues using the effective interest method.

#### Foreign currency translation

Foreign currency transactions during the year are translated into Hong Kong dollars using the spot exchange rates at the transaction dates. Monetary assets and liabilities denominated in currencies other than Hong Kong dollars are translated into Hong Kong dollars using the closing exchange rate at the reporting date. Exchange gains and losses are recognised in the statement of comprehensive income.

#### Provisions and contingent liabilities

Provisions are recognised for liabilities of uncertain timing or amount when the Fund has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events, are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

#### Related parties

The Fund is a separate accounting entity within the Government established under the Trading Funds Ordinance. During the year, the Fund has entered into transactions with various related parties, including government bureaux and departments, other trading funds and financially autonomous bodies controlled or significantly influenced by the Government, in the ordinary course of its business.

# 財務報表附註

## Notes to the Financial Statements

### 3 會計政策改變

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效。該等新準則或修訂對基金的會計政策並沒有影響。因此並未為會計政策帶來任何改變。

基金並沒有採納在本會計期尚未生效的任何新準則或詮釋(附註23)。

### 4 來自客戶合約之收入

### CHANGES IN ACCOUNTING POLICIES

The HKICPA has issued certain new or revised HKFRSs that are first effective for the current accounting period of the Fund. None of them has impact on the accounting policies of the Fund. As such, there is no change to the accounting policies.

The Fund has not applied any new standard or interpretation that is not yet effective for the current accounting period (note 23).

### REVENUE FROM CONTRACTS WITH CUSTOMERS

		2022	2021
機電及電子工程服務	Electrical, mechanical and electronic services	7,680,316	7,538,132
車輛工程服務	Vehicle services	439,560	431,033
工程及顧問服務	Project and consultancy services	563,032	563,896
其他	Others	36,085	44,760
總額	Total	8,718,993	8,577,821

基金在客戶合約方面的履約責任，主要涉及向客戶提供全面的機電及電子工程服務、車輛工程服務，以及工程及顧問服務。就按服務水平協議提供的服務而言，客戶須就每項服務按季預繳固定金額的服務費。基金是在提供服務的同時履行履約責任，並隨時間移轉按直線法確認收費。至於按其他合約提供的服務，基金是在提供服務的同時履行履約責任，並按成本比例法確認服務費。

The Fund's performance obligations in contracts with customers mainly involve providing comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to the customers. For provision of services under service level agreements, a customer is required to pay a fixed amount of service fee quarterly for each service in advance. The Fund satisfies its performance obligation as the service is rendered and recognises the fee over time on a straight-line basis. For provision of services under other contracts, the Fund satisfies its performance obligation as the service is rendered and recognises a service fee based on a cost-to-cost method.



## 財務報表附註

### Notes to the Financial Statements

#### 5 運作成本

#### OPERATING COSTS

		2022	2021
員工費用	Staff costs	2,974,621	2,948,271
材料	Materials	504,111	543,616
承辦商費用	Contractors cost	4,348,357	4,336,782
租金及管理費用	Rental and management charges	35,610	36,514
一般運作及行政開支	General operating and administration expenses	391,187	346,155
折舊及攤銷	Depreciation and amortisation	209,444	165,401
審計費用	Audit fees	855	2,060
<b>總額</b>	<b>Total</b>	<b>8,464,185</b>	8,378,799

#### 6 其他收入

#### OTHER INCOME

		2022	2021
銀行存款利息	Interest income from bank deposits	5,352	35,004
外匯基金存款利息	Interest income from placement with the Exchange Fund	306,998	184,537
<b>總額</b>	<b>Total</b>	<b>312,350</b>	219,541

#### 7 固定資產回報率

#### RATE OF RETURN ON FIXED ASSETS

固定資產回報率(其產生辦法與採納香港財務報告準則第16號「租賃」(見附註2.5)前相同,以便比較)是以總全面收益(不包括利息收入)除以固定資產平均淨值計算,並以百分比的方式表達。固定資產只包括物業、設備及器材和無形資產。預期基金可以達到由財政司司長根據《營運基金條例》釐定的每年固定資產目標回報率為6.4%(2021: 6.4%)。

The rate of return on fixed assets, the derivation of which is consistent with that before the adoption of HKFRS 16 "Leases" (see note 2.5) to achieve comparability, is calculated as total comprehensive income (excluding interest income) divided by average net fixed assets, and expressed as a percentage. Fixed assets include property, plant and equipment, and intangible assets only. The Fund is expected to meet a target rate of return on fixed assets of 6.4% (2021: 6.4%) per year as determined by the Financial Secretary under the Trading Funds Ordinance.

## 財務報表附註

### Notes to the Financial Statements

#### 8 物業、設備及器材

#### PROPERTY, PLANT AND EQUIPMENT

		土地及 建築物	電腦器材	車輛	傢具及 固定裝置	其他器材	總額
		Land and buildings	Computer equipment	Motor vehicles	Furniture and fixtures	Other equipment	Total
<b>成本</b>	<b>Cost</b>						
在2020年4月1日	At 1 April 2020	950,100	205,745	63,102	316,716	181,900	1,717,563
添置	Additions	–	62,339	5,927	90,310	77,364	235,940
出售	Disposals	–	(2,747)	(1,381)	(2,576)	(248)	(6,952)
在2021年3月31日	At 31 March 2021	950,100	265,337	67,648	404,450	259,016	1,946,551
在2021年4月1日	At 1 April 2021	<b>950,100</b>	<b>265,337</b>	<b>67,648</b>	<b>404,450</b>	<b>259,016</b>	<b>1,946,551</b>
添置	Additions	–	<b>61,245</b>	<b>6,189</b>	<b>74,686</b>	<b>39,801</b>	<b>181,921</b>
出售	Disposals	–	–	<b>(6,810)</b>	<b>(188)</b>	<b>(1,987)</b>	<b>(8,985)</b>
<b>在2022年3月31日</b>	<b>At 31 March 2022</b>	<b>950,100</b>	<b>326,582</b>	<b>67,027</b>	<b>478,948</b>	<b>296,830</b>	<b>2,119,487</b>
<b>累計折舊</b>	<b>Accumulated depreciation</b>						
在2020年4月1日	At 1 April 2020	239,255	117,884	45,637	118,128	54,311	575,215
年內費用	Charge for the year	7,777	33,561	7,524	52,601	23,943	125,406
出售	Disposals	–	(2,747)	(1,381)	(2,576)	(211)	(6,915)
在2021年3月31日	At 31 March 2021	247,032	148,698	51,780	168,153	78,043	693,706
在2021年4月1日	At 1 April 2021	<b>247,032</b>	<b>148,698</b>	<b>51,780</b>	<b>168,153</b>	<b>78,043</b>	<b>693,706</b>
年內費用	Charge for the year	<b>7,778</b>	<b>43,314</b>	<b>6,355</b>	<b>64,303</b>	<b>31,046</b>	<b>152,796</b>
出售	Disposals	–	–	<b>(6,810)</b>	<b>(132)</b>	<b>(1,839)</b>	<b>(8,781)</b>
<b>在2022年3月31日</b>	<b>At 31 March 2022</b>	<b>254,810</b>	<b>192,012</b>	<b>51,325</b>	<b>232,324</b>	<b>107,250</b>	<b>837,721</b>
<b>帳面淨值</b>	<b>Net book value</b>						
<b>在2022年3月31日</b>	<b>At 31 March 2022</b>	<b>695,290</b>	<b>134,570</b>	<b>15,702</b>	<b>246,624</b>	<b>189,580</b>	<b>1,281,766</b>
在2021年3月31日	At 31 March 2021	703,068	116,639	15,868	236,297	180,973	1,252,845



## 財務報表附註

### Notes to the Financial Statements

#### 9 租賃

#### LEASES

##### (a) 使用權資產

##### Right-of-use assets

##### 建築物 Buildings

		2022	2021
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	72,646	46,150
添置	Additions	26,889	26,496
到期租賃合約	Expiry of lease contracts	(7,956)	–
在年終	At end of year	91,579	72,646
<b>累計折舊</b>	<b>Accumulated depreciation</b>		
在年初	At beginning of year	20,266	8,826
年內費用	Charge for the year	14,425	11,440
到期租賃合約	Expiry of lease contracts	(7,956)	–
在年終	At end of year	26,735	20,266
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	64,844	52,380

##### (b) 租賃負債

##### Lease liabilities

		2022	2021
流動	Current	14,582	13,090
非流動	Non-current	50,565	39,771
<b>總額</b>	<b>Total</b>	<b>65,147</b>	<b>52,861</b>

下表顯示租賃負債的變動，包括現金和非現金變動。

The table below shows changes in lease liabilities, including both cash and non-cash changes.

		2022	2021
在年初	At beginning of year	52,861	37,849
來自融資現金流量的變動：	Changes from financing cash flows:		
支付租賃負債	Payments of lease liabilities	(15,109)	(12,025)
非現金變動：	Non-cash changes:		
租賃負債的利息支出	Interest expense on lease liabilities	506	541
與新租賃相關的租賃負債增加	Increase in lease liabilities relating to new leases	26,889	26,496
在年終	At end of year	65,147	52,861

## 財務報表附註

### Notes to the Financial Statements

#### 9 租賃 (續)

#### LEASES (continued)

##### (b) 租賃負債 (續)

##### Lease liabilities (continued)

租賃負債的剩餘合約期限列載如下，有關資料是根據合約未貼現的現金流量列出：

The remaining contractual maturities of lease liabilities, which are based on contractual undiscounted cash flows, are shown below:

		2022	2021
1年內	Within one year	15,109	13,519
1年後至2年內	After one year but within two years	16,150	11,376
2年後至5年內	After two years but within five years	32,427	27,017
5年後	After five years	2,778	1,974
<b>總額</b>	<b>Total</b>	<b>66,464</b>	<b>53,886</b>

##### (c) 於全面收益表內確認與租賃有關的支出項目

##### Expense items in relation to lease recognised in the statement of comprehensive income

		2022	2021
租賃負債的利息支出	Interest expense on lease liabilities	506	541

##### (d) 租賃之現金流出總額

##### Total cash outflow for leases

		2022	2021
租賃負債	Lease liabilities	15,109	12,025



## 財務報表附註

### Notes to the Financial Statements

#### 10 無形資產

#### INTANGIBLE ASSETS

##### 電腦軟件牌照及系統開發成本 Computer software licences and system development costs

		2022	2021
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	214,080	157,899
添置	Additions	86,718	56,181
出售	Disposals	(1,000)	–
在年終	At end of year	299,798	214,080
<b>累計攤銷</b>	<b>Accumulated amortisation</b>		
在年初	At beginning of year	103,364	74,809
年內費用	Charge for the year	42,223	28,555
出售	Disposals	(459)	–
在年終	At end of year	145,128	103,364
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	154,670	110,716

#### 11 外匯基金存款

外匯基金存款結餘包括本金50億港元（2021：50億港元）及為報告日已入帳但尚未提取的利息14.455億港元（2021：11.562億港元）。存款期為期6年（由存款日起計），期內不能提取本金。

外匯基金存款利息按每年1月釐定的固定息率計算。該息率是外匯基金投資組合過去6年的平均年度投資回報，或3年期政府債券在上一個年度的平均年度收益率，以0%為下限，兩者取其較高者。2022年固定息率為每年5.6%，2021年為每年4.7%。

#### PLACEMENT WITH THE EXCHANGE FUND

The balance of the placement with the Exchange Fund comprised principal sums of HK\$5,000 million (2021: HK\$5,000 million) and interest paid but not yet withdrawn at the reporting date of HK\$1,445.5 million (2021: HK\$1,156.2 million). The term of the placement is six years from the date of placement, during which the amount of principal sums cannot be withdrawn.

Interest on the placement is payable at a fixed rate determined in January each year. The rate is the average annual investment return of the Exchange Fund's Investment Portfolio for the past six years or the average annual yield of three-year Government Bonds for the previous year subject to a minimum of zero percent, whichever is the higher. The interest rate has been fixed at 5.6% per annum for the year 2022 and at 4.7% per annum for the year 2021.

#### 12 應收帳款及其他應收款項

#### TRADE AND OTHER RECEIVABLES

		2022	2021
應收帳款	Trade receivables	9	6
預付款項	Prepayments	4,862	2,280
銀行存款應計利息	Accrued interest from bank deposits	990	261
外匯基金存款應計利息	Accrued interest from placement with the Exchange Fund	89,001	71,344
<b>總額</b>	<b>Total</b>	<b>94,862</b>	<b>73,891</b>

## 財務報表附註

### Notes to the Financial Statements

#### 13 與客戶的合約結餘

#### CONTRACT BALANCES WITH CUSTOMERS

##### (a) 應收款項和合約資產

就提供予公眾的服務而言，在報告日的應收款項結餘即載於附註12的應收帳款。至於提供予關連人士的服務，在報告日的應收款項結餘為3.768億港元（2021：3.560億港元），該結餘已包括於財務狀況表中的應收關連人士帳款。而基金並沒有任何源於這些服務的合約資產。

##### Receivables and contract assets

For services provided to the general public, the balance of receivables at the reporting date is presented as trade receivables in note 12. For services provided to related parties, the balance of receivables at the reporting date of HK\$376.8 million (2021: HK\$356.0 million) is included in the amounts due from related parties in the statement of financial position. The Fund does not have any contract assets arising from these services.

##### (b) 合約負債

基金在收取客戶預繳的費用後向客戶提供服務的責任，會於財務狀況表中以遞延收入的形式列出，分析如下：

##### Contract liabilities

The Fund's obligations to provide services to customers for which the Fund has received advance payments from the customers are presented as deferred revenue in the statement of financial position, as analysed below:

遞延收入	Deferred revenue	2022	2021
機電及電子工程服務	Electrical, mechanical and electronic services	890,867	674,836
車輛工程服務	Vehicle services	137,291	104,140
工程及顧問服務	Project and consultancy services	109,896	65,220
<b>總額</b>	<b>Total</b>	<b>1,138,054</b>	<b>844,196</b>
代表：	Representing:		
向關連人士提供之服務	Services to related parties	1,126,573	830,175
向公眾提供之服務	Services to the general public	11,481	14,021
<b>總額</b>	<b>Total</b>	<b>1,138,054</b>	<b>844,196</b>

年內遞延收入結餘的重大變動開列如下：

Significant changes in the balances of deferred revenue during the year are shown below:

		2022	2021
因年初遞延收入結餘中的款項於年內獲確認為收入而減少	Decrease due to recognition as revenue during the year that was included in the balances of deferred revenue at beginning of year	(670,101)	(1,033,814)
因年內收取預繳費用而增加	Increase due to advance payments received during the year	963,959	736,815

於2022年3月31日，分攤至基金現有合約下剩餘履約責任的交易價格總額估計為236.067億港元（2021：207.785億港元），基金預期該金額於未來5年內獲確認為收入。沒有任何客戶合約的代價未納入交易價格。

As at 31 March 2022, the aggregate amount of the transaction price allocated to the remaining performance obligations under the Fund's existing contracts is estimated at HK\$23,606.7 million (2021: HK\$20,778.5 million), which is expected to be recognised as revenue over the next five years. No consideration from contracts with customers is not included in the transaction price.



## 財務報表附註

### Notes to the Financial Statements

#### 14 客戶按金

指向客戶提供工程服務前收取的按金。有關按金用以支付應由客戶付予承辦商的採購費用。

#### CUSTOMERS' DEPOSITS

This represents deposits received from customers in the provision of project services. The deposits are used to settle procurement costs payable by the customers to contractors.

#### 15 僱員福利撥備

此為在計至報告日就所提供的服務給予僱員年假及合約員工約滿酬金的估計負債（見附註2.11）。

#### PROVISION FOR EMPLOYEE BENEFITS

This represents the estimated liability for employees' annual leave and obligations on contract end gratuities payable to contract staff for services rendered up to the reporting date (see note 2.11).

#### 16 營運基金資本

此為政府對基金的投資。

#### TRADING FUND CAPITAL

This represents the Government's investment in the Fund.

#### 17 保留盈利

#### RETAINED EARNINGS

		2022	2021
在年初的結餘	Balance at beginning of year	5,776,679	5,431,607
年度總全面收益	Total comprehensive income for the year	567,158	418,563
政府法定回報	Statutory return to the Government	(82,848)	(73,491)
<b>在年終的結餘</b>	<b>Balance at end of year</b>	<b>6,260,989</b>	5,776,679

年內，政府根據《營運基金條例》指示將截至2021年3月31日止年度的目標回報（見附註7）轉撥至政府一般收入，而該轉撥於2022年3月完成（2021：截至2020年3月31日止年度的目標回報的轉撥於2021年3月完成）。

During the year, the Government directed the transfer of the target return (see note 7) for the year ended 31 March 2021 into general revenue pursuant to the Trading Funds Ordinance, and the transfer was completed in March 2022 (2021: the transfer of the target return for the year ended 31 March 2020 was completed in March 2021).

#### 18 現金及等同現金

#### CASH AND CASH EQUIVALENTS

		2022	2021
現金及銀行結餘	Cash and bank balances	11,346	12,948
銀行存款	Bank deposits	3,470,000	2,590,000
小計	Subtotal	3,481,346	2,602,948
減：原有效期為3個月以上的銀行存款	Less: Bank deposits with original maturities over three months	(680,000)	(680,000)
<b>現金及等同現金</b>	<b>Cash and cash equivalents</b>	<b>2,801,346</b>	1,922,948

## 財務報表附註

### Notes to the Financial Statements

#### 19 資本承擔

於2022年3月31日，基金尚未在財務報表內撥備的資本承擔如下：

#### CAPITAL COMMITMENTS

As at 31 March 2022, the Fund had capital commitments, so far as not provided for in the financial statements, as follows:

		2022	2021
已批准及簽約	Authorised and contracted for	23,335	23,702
已批准惟未簽約	Authorised but not yet contracted for	94,433	119,991
<b>總額</b>	<b>Total</b>	<b>117,768</b>	143,693

#### 20 或有負債

於2022年3月31日，基金就一銀行向若干受益客戶發出的3,870萬港元（2021：2,660萬港元）履約保證書向該銀行提供相應的損害賠償保證，有關客戶為基金的關連人士。

#### CONTINGENT LIABILITIES

As at 31 March 2022, the Fund had provided a bank with counter-indemnity in respect of performance bonds for HK\$38.7 million (2021: HK\$26.6 million) issued by the bank in favour of certain customers who are related parties of the Fund.

#### 21 關連人士的交易

除已在本財務報表內另作披露的交易外，年內與關連人士進行的其他重大交易摘述如下：

#### RELATED PARTY TRANSACTIONS

Apart from those separately disclosed in the financial statements, the other material related party transactions for the year are summarised as follows:

- |   |  |
|---|--|
| (a) 基金向關連人士提供的服務包括機電及電子工程服務、車輛工程服務，以及工程及顧問服務。這些服務的收入總額為87.134億港元（2021：85.766億港元）； | (a) services provided to related parties included electrical, mechanical and electronic services, vehicle services, and project and consultancy services. The total revenue derived from these services amounted to HK\$8,713.4 million (2021: HK\$8,576.6 million); |
| (b) 關連人士向基金提供的服務包括維修、辦公地方、中央行政，以及審計。這些服務的支出總額為1.081億港元（2021：1.133億港元）；以及          | (b) services received from related parties included maintenance, accommodation, central administration and auditing. The total cost incurred on these services amounted to HK\$108.1 million (2021: HK\$113.3 million); and  |
| (c) 向關連人士購入的物業、設備及器材包括裝置工程及車輛。這些資產的成本總額為620萬港元（2021：460萬港元）。                      | (c) acquisition of property, plant and equipment from related parties included fitting out projects and motor vehicles. The total cost of these assets amounted to HK\$6.2 million (2021: HK\$4.6 million).  |

向關連人士提供的服務，是以成本加成法定價。而由關連人士提供的服務，若有關服務亦有提供予公眾，則以公眾所須付的價格收費，否則按收回全部成本方式計算。

Services provided to related parties were priced on a cost-plus basis. Services received from related parties were charged at the rates payable by the general public for services which were also available to the public or on a full cost recovery basis for services which were available only to related parties.



## 財務報表附註

### Notes to the Financial Statements

## 22 金融風險管理

### 22.1 投資政策

基金將現金盈餘投放於金融工具，包括定期存款及外匯基金存款。根據基金的政策，所有投放於金融工具的投資均應保本。

### 22.2 信用風險

信用風險指金融工具的一方將不能履行責任而且會引致另一方蒙受財務損失的風險。

基金的信用風險，主要取決於外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款及銀行結餘。基金訂有風險政策，並持續監察須承擔的信用風險。

為盡量減低信用風險，所有定期存款均存放於香港的持牌銀行。這些金融資產被視為屬低信用風險。虧損準備按相等於12個月預期信用虧損的數額計量，基金評定所涉及的虧損並不重大。

銀行存款及銀行結餘的信用質素，以穆迪或其等同指定的評級，分析如下：

		2022	2021
信用評級：	Credit rating:		
Aa1 至 Aa3	Aa1 to Aa3	1,091,295	212,925
A1 至 A3	A1 to A3	1,990,000	1,990,000
Baa1 至 Baa3	Baa1 to Baa3	400,000	400,000
<b>總額</b>	<b>Total</b>	<b>3,481,295</b>	2,602,925

雖然其他金融資產須符合減值規定，但基金估計其預期信用虧損輕微，因此無須作出虧損準備。

在報告日基金的金融資產所須承擔的最高信用風險數額相當於其帳面值。

## FINANCIAL RISK MANAGEMENT

### Investment policy

Surplus cash is invested in financial instruments including fixed deposits and placement with the Exchange Fund. It is the Fund's policy that all investments in financial instruments should be principal-protected.

### Credit risk

Credit risk is the risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss.

The Fund's credit risk is primarily attributable to placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits and bank balances. The Fund has a credit policy in place and the exposure to these credit risks is monitored on an ongoing basis.

To minimise credit risks, all fixed deposits are placed with licensed banks in Hong Kong. These financial assets are considered to have a low credit risk. The loss allowances are measured at amounts equal to 12-month expected credit losses, which are assessed to be immaterial by the Fund.

The credit quality of bank deposits and bank balances, analysed by the ratings designated by Moody's or their equivalents, is shown below:

		2022	2021
Credit rating:			
Aa1 to Aa3		1,091,295	212,925
A1 to A3		1,990,000	1,990,000
Baa1 to Baa3		400,000	400,000
<b>Total</b>		<b>3,481,295</b>	2,602,925

While other financial assets are subject to the impairment requirements, the Fund has estimated that their expected credit losses are minimal and considers that no loss allowance is required.

The maximum exposure to credit risk of the financial assets of the Fund at the reporting date is equal to their carrying amounts.

## 財務報表附註

### Notes to the Financial Statements

## 22 金融風險管理 (續)

### 22.3 流動資金風險

流動資金風險指某一實體將難以履行與金融負債相關的責任的風險。

基金採用預期現金流量分析來管理流動資金風險，即透過預測所需的現金款額及監察基金的營運資金，確保可以償付所有到期負債及應付所有已知的資金需求。

### 22.4 利率風險

利率風險指因市場利率變動而引致虧損的風險。利率風險可進一步分為公平值利率風險及現金流量利率風險。

公平值利率風險指金融工具的公平值會因市場利率變動而波動的風險。由於基金的所有銀行存款均按固定利率計息，當市場利率上升，這些存款的公平值便會下跌。然而，由於這些存款均按攤銷成本值列帳，市場利率的變動不會影響其帳面值及基金的盈利和儲備。

現金流量利率風險指金融工具的未來現金流量會因市場利率變動而波動的風險。基金無須面對重大的現金流量利率風險，因為其持有的主要金融工具都不是浮息金融工具。

### 22.5 貨幣風險

貨幣風險指金融工具的公平值或未來現金流量會因匯率變動而波動的風險。

基金沒有重大的貨幣風險，因為其金融工具絕大部分是以港元為本位。

## FINANCIAL RISK MANAGEMENT (continued)

### Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities.

The Fund employs projected cash flow analysis to manage liquidity risk by forecasting the amount of cash required and monitoring the working capital of the Fund to ensure that all liabilities due and known funding requirements could be met.

### Interest rate risk

Interest rate risk refers to the risk of loss arising from changes in market interest rates. This can be further classified into fair value interest rate risk and cash flow interest rate risk.

Fair value interest rate risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market interest rates. Since all of the Fund's bank deposits bear interest at fixed rates, their fair values will fall when market interest rates increase. However, as they are all stated at amortised cost, changes in market interest rates will not affect their carrying amounts and the Fund's profit and reserves.

Cash flow interest rate risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Fund is not exposed to material cash flow interest rate risk because it has no major financial instruments bearing interest at a floating rate.

### Currency risk

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

The Fund does not have significant exposure to currency risk as substantially all of its financial instruments are denominated in Hong Kong dollars.



財務報表附註  
Notes to the Financial Statements

22 金融風險管理 (續)

22.6 其他金融風險

基金因於每年1月釐定的外匯基金存款息率（附註11）的變動而須面對金融風險。敏感度分析顯示，在2021年及2022年的息率增加／減少50個基點（2021：50個基點），而其他因素不變的情況下，年度盈利將增加／減少3,220萬港元（2021：3,080萬港元）。

22.7 公平值

在活躍市場買賣的金融工具的公平值是根據報告日的市場報價釐定。如沒有該等市場報價，則以現值或其他估值方法以報告日的市況數據評估其公平值。

所有金融工具均以與其公平值相等或相差不大的金額在財務狀況表內列帳。

23 已頒布但於截至2022年3月31日止年度尚未生效的修訂、新準則及詮釋的可能影響

直至本財務報表發出之日，香港會計師公會已頒布多項修訂、新準則及詮釋。該等修訂、新準則及詮釋在截至2022年3月31日止年度尚未生效，亦沒有在本財務報表中採納。

基金正就該等修訂、新準則及詮釋在首次採納期間預計會對其財務報表產生的影響進行評估。迄今的結論是採納該等修訂、新準則及詮釋不大可能會對財務報表有重大影響。

FINANCIAL RISK MANAGEMENT (continued)

Other financial risk

The Fund is exposed to financial risk arising from changes in the interest rate on the placement with the Exchange Fund which is determined in January each year (note 11). Sensitivity analysis based on a 50 basis point (2021: 50 basis point) increase/decrease in the interest rates for 2021 and 2022, with all other variables being held constant, shows that the profit for the year would have increased/decreased by HK\$32.2 million (2021: HK\$30.8 million).

Fair values

The fair value of financial instruments traded in active markets is based on quoted market prices at the reporting date. In the absence of such quoted market prices, fair values are estimated using present value or other valuation techniques, using inputs based on market conditions existing at the reporting date.

All financial instruments are stated in the statement of financial position at amounts equal to or not materially different from their fair values.

POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 MARCH 2022

Up to the date of issue of these financial statements, the HKICPA has issued a number of amendments, new standards and interpretations which are not yet effective for the year ended 31 March 2022 and which have not been adopted in these financial statements.

The Fund is in the process of making an assessment of the expected impact of these amendments, new standards and interpretations on its financial statements in the period of initial application. So far it has concluded that the adoption of them is unlikely to have a significant impact on the financial statements.

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香港海關	Customs and Excise Department
衛生署	Department of Health
渠務署	Drainage Services Department
教育局	Education Bureau
食物環境衛生署	Food and Environmental Hygiene Department
政府飛行服務隊	Government Flying Service
政府產業署	Government Property Agency
路政署	Highways Department
香港消防處	Hong Kong Fire Services Department
香港警務處	Hong Kong Police Force
醫院管理局	Hospital Authority
康樂及文化事務署	Leisure and Cultural Services Department
社會福利署	Social Welfare Department
運輸署	Transport Department
將軍澳醫院	Tseung Kwan O Hospital



