

CITFDIGEST



CITF 建造業 創科基金

二零二二年三月 MAR 2022 / 第十一期 ISSUE 11

融匯科技 創建香港 WE INNOVATE, WE BUILD



建造業創新及科技基金優化措施簡介會

建造業創新及科技基金(基金)繼2021年完成中期檢討後,宣布一系列基金優化措施並於2022年1月1日實施。為讓業內人士了解優化措施詳情,建造業議會(議會)及香港特別行政區政府發展局特別於2021年12月23日假九龍灣零碳天地順利舉辦了「建造業創新及科技基金(基金)優化措施簡介會」。

簡介會以實體及線上混合模式進行,吸引超過五百位人士參與及出席,當中包括來自承建商、顧問及分包商的潛在申請者。基金管理委員會主席陳志超工程師致歡迎辭,為簡介會揭開序幕,並總結基金過去3年的成績 - 共批核超過約5.4億元予2 100多份申請,資助 830 家公司、機構和組織採用創新科技和提供人力培訓,以及將約 560 種產品、解決方案和培訓課程納入預先批核名單。

基金進度理想,有賴創新建築科技、建築信息模擬、「組裝合成」建築法及人力發展四個專業評審小組委員會的全力支持。為感謝他們的付出,陳志超工程師與關景輝工程師代表基金管理委員會向評審小組委員會委員頒發感謝狀。基金管理委員會另一委員鍾國輝教授工程師亦讚揚政府、議會和持份者之間的通力合作令基金發揮最大效用。

建造業創新及科技基金管理委員會主席陳志超工程師致歡迎辭

Welcome Speech by Ir CHAN Chi-Chiu, the Chairperson of the Management Committee on CITF

CITF Enhancement Measures Briefing Session

Further to completion of the CITF Mid-Term Review in 2021, a series of enhancement measures have been introduced and made effective since 1 January 2022. To enable a better understanding on the Enhancement Measures among practitioners, the Construction Industry Council (the Council) and the Development Bureau of the Government of the HKSAR had successfully organised the CITF Enhancement Measures Briefing Session on 23 December 2021 at Zero Carbon Park.

The Briefing Session on the CITF Enhancement measures organised at a hybrid mode attracted nearly 500 prospective applicants from contractors, consultants and sub-contractors attending online or in-person at the Zero Carbon Park. The welcome address delivered by Ir CHAN Chi-chiu, Chairman of the Management Committee on the CITF (MC-CITF), unveiled the opening of the session and summed up the milestone of the CITF - approving more than 2 100 applications at a total grant of around \$540 million, subsidising 830 companies, institutions and organisations to adopt technology and train up manpower as well as admitting some 560 products, solutions and training courses to the Pre-approved Lists.

The progress would go much sluggish had we not received the whole-hearted support from the four Vetting Sub-Committees specialising in Advanced Construction Technologies, Building Information Modelling, Modular Integrated Construction and Manpower Development. To express gratitude for their efforts, Ir CHAN Chi-chiu and Ir Alex KWAN had jointly presented Certificates of Appreciation to our well-respected members on behalf of the MC-CITF. Ir Professor CHUNG Kwok-fai, member of the MC-CITF, also gave credits to the close collaboration shared among the government, the Council and stakeholders in driving the achievements.



向評審小組委員會頒發感謝狀

Presentation of Certificates of Appreciation to Vetting Sub-Committees

<https://www.citf.cic.hk>

CITF 建造業創新及科技基金

[citf.cic.hk](https://www.citf.cic.hk)



發展局
Development Bureau



CONSTRUCTION INDUSTRY COUNCIL
建造業議會

實踐經驗分享

SHARING OF PRACTICAL EXPERIENCE

我們要特別感謝基金成功申請者-嘉輝建築工程有限公司、精進建築有限公司及健浩機械工程有限公司，無私分享了他們在工地應用重型機械、安全監察系統及於排水管道改造工程中採用建築信息模擬(BIM)的經驗。他們的實地應用證明了使用創新技術能夠提高生產力、質量、安全和環保效益。

We owe special thanks to our successful applicants - Ka Fai Construction & Engineering Limited, Aggressive Construction Engineering Ltd and Kent Ho Engineering Works Ltd which generously shared with us their experience of onsite application of technologies ranging from heavy duty machinery to safety alert monitoring system to Building Information Modelling (BIM) application in drainage pipe modification. Improvement in productivity, quality, safety and environmental performance for the use of innovative technologies was evidenced in these real case scenarios.

嘉輝建築工程有限公司 Kai Fai Construction and Engineering Limited

單輪壓路機和土壤壓實機
Compact Roller
(PA20-117)



所採用技術之優點：

- 智能測量 / 資料搜集
- 智能實時呈現作業效果
- 智能停機，在發動機靜止時自動關閉，具備 ECOMODE 轉速調率功能及減少噪音污染
- 碾壓一段140平方米的路段只需5次及20分鐘 (對比傳統作法需8次及40分鐘)
- 所需時間節省 50%
- 降低油耗量 30%

Merits of technology adoption:

- Automatic surveying / data collection
- Real-time report of working process
- ECOSTOP - automatic stop when engine is in static mode; ECOMODE - speed adjustment and noise pollution reduction
- Require only rolling for 5 times in 20 mins. for a section of pavement of 140sqm (as compared to 8 times in 40 mins using traditional method)
- 50% time saving
- 30% reduction of fuel consumption

精進建築有限公司 Aggressive Construction Company Limited

安全監控系統
Safety Monitoring System
(PA20-033)



所採用技術之優點：

- 電箱被未經授權人仕開啟情況減少95%
- 升降機門未經授權人仕開啟情況減少50%
- 實時監測系統，能提供準確位置，減省巡查人手，提高生產力
- 減少破壞及更換門鎖情況，減少保養人手及物料損耗
- 促進工地管理，創造安全工作環境以減少意外
- 收集數據進行分析以評估工地狀況
- 加強工友安全意識

Merits of technology adoption:

- 95% reduction in unauthorized opening of power distribution box
- 50% reduction in unauthorized opening of lift shaft gate
- Achieve real time monitoring in providing actual incident location, which reduces patrolling manpower and enhances productivity
- Reduce damage and subsequent replacements of locks for power distribution box and lift shaft gate, achieving savings in maintenance manpower and material wastage
- Facilitate site management and create safe working condition to reduce potential accidents.
- Enable assessment on actual site situation from data retrieved from the Safety Monitoring System
- Enhance safety awareness of workers

健浩機械工程有限公司 Kent Ho Engineering Works Limited

建築信息模擬軟件
BIM Application in Drain Modification Work
(PBS18-002 and PBS18-003)



所採用技術之優點：

- 易於檢索信息，提高生產力
- 加強施工文件的協調
- 提高信息交換速度
- 現場施工零事故，BIM預先替前線工人解決主要安全問題
- 無需經常召開工程協調會議

Merits of technology adoption:

- Facilitate easy retrieval of information to improve productivity
- Increase coordination of construction documents
- Speed up information exchange
- Enable zero Incident for site work, with major safety issues addressed by BIM in advance for frontline workers
- Obviate needs for frequent co-ordination meetings

問答環節 Question and Answer Session

多得參與者的踴躍發問，大會收集了不少具啟發性的提問，其中重點整理如下：
Thanks to the overwhelming interest of attendees, the host had received quite a number of inspiring questions, highlights of which are provided below :



Q 基金有否推出任何具體措施幫助中小企? Did the CITF put forward any specific measures helping Small and Medium Enterprises (SMEs)?

A 中小企欠缺行政支援，很多時候提交的產品報價並不符合規格，需重新進行報價，費時失事。有見及此，基金特別準備了標準報價單樣本，以便利中小企索取有效產品報價，從而縮短整個申請流程。另外，我們正分階段革新基金網頁，包括推出手機版網頁，添加綜合分類功能以更好過濾預先批核名單例如，用家可同時以產品類型如物聯網、機械人等和產品功能提高生產力、改善工地安全等搜索合適產品。我們亦會利用大數據，以物色合適中小企使用的先進建築科技產品。

SMEs which lack administrative support to produce proper product quotations always have to spare abortive efforts to repeat the quotation process to obtain documents complying with the required specifications. In view of this, the CITF has prepared a sample standard quotation form to facilitate SMEs to obtain valid product quotations, thereby shortening the application process. Moreover, we are conducting major revamp to the CITF website by phrases, initiatives of which include launching mobile version, adding multi-filtering function to the pre-approved list to enable sorting on product category say IoT, robotics and intended benefits like productivity enhancement and safety improvement. We will also make use of big data to identify innovations and technologies suiting the needs of SMEs.

Q 安全相關科技的資助上限上調至每項科技港幣200萬。 申請人可如何識別某項產品是安全相關科技? The per-technology fund ceiling for safety-related technology had been uplifted to \$2 million. How to identify if a product is a safety-related technology?

A 基金網頁的預先批核名單上已載有與工地安全相關的預先批核產品。如申請的產品為非預先批核項目，則會交由評審小組委員會審核，並就以下因素以評定該產品是否可以界定為一種安全相關科技，包括該科技能在建造過程為改善工地安全帶來明顯裨益，例如：(i)消除工友面對潛在危害的風險；(ii)大幅緩減安全風險或危害；(iii)保護工友，減低他們在工地受傷；(iv)能定期或持續監察工地情況及提供安全警示以快速應對意外或事故；及(v)能夠就不斷調整的環境進行即時性的風險評估等等。

The pre-approved list uploaded onto the CITF website have already specified safety-related technologies. In case the product under application is non-pre-approved, the Vetting Sub-committee is vested with the discretion to determine whether it carries significant merits in directly improving site safety in the construction process to constitute safety-related technologies, for example, (i) eliminating workers' exposure to safety risks; (ii) considerably reducing safety risks or hazards; (iii) protecting workers from safety risk exposure; (iv) provision of periodic or continuous monitoring and safety alert for quick responses to accidents or incidents; and (v) enabling dynamic risk assessment etc.

Q 有興趣參與香港先驅應用項目的公司應如何申請? How can a company enrol in the Pioneering Application in Hong Kong?

A 有興趣的申請者可先提交初步建議書予評審小組委員會進行初步篩選。入選之申請者將獲邀提交詳細建議書，內容包括項目詳情、為業界帶來的預期效益、預算、人力計劃、成果或經驗分享詳情等。申請者亦需向建造業議會作介紹。

Interested applicants shall submit an initial idea of the proposal for preliminary screening. Enrolled applicants will be invited to submit a detailed proposal which includes project particulars, intended benefits for the industry, budget, manpower plan, and ways of benefit/ experience sharing etc. Applicant shall expect to prepare presentation to the Construction Industry Council (CIC).

Q 香港先驅應用項目申請者是否必須與高等教育機構/研究機構或具研究能力的半官方機構合作，共同提交香港先驅應用項目的公司? Is it mandatory for applicants of Pioneering Application in Hong Kong to engage higher education institution, R&D centres or semi-quasi-governmental organisation to jointly submit applications for Pioneering Application in Hong Kong?

A 不需要。不過，我們非常鼓勵申請者夥拍高等教育機構/研究機構或具研究能力的半官方機構合作，以相得益彰。值得一提的是，基金只接受本地機構，任何在本港以外地區運營的機構均不符合資格作合作伙伴。

Not necessarily though we highly recommend applicants to partner with higher education institutions, R&D centres or semi-quasi-governmental organisations to achieve synergies. Among others, the CITF only recognises local bodies as collaborating partner. Organisations operating outside Hong Kong are not eligible to be listed as collaborating partner.

基金統計 Funding Statistics :

獲批項目及總金額名單 (截至二零二二年二月二十八日) List of Approved Projects and Amount (as at 28 Feb 2022)	數量 Numbers	獲批總金額 Amount(HK\$)
建築信息模擬軟件 Building Information Modelling (BIM) Training	571	2,300 萬
建築信息模擬硬件 BIM Software and Hardware	737	8,300 萬
創新建築科技 Advanced Construction Technologies	828	2億5,600 萬
「組裝合成」建築法 Modular Integrated Construction	56	1億2,800 萬
預製鋼筋 Prefabricated Steel Rebar	118	8,900 萬
人力發展 Manpower Development	34	1,500 萬
總數 Total :	2344	5億9,400 萬



與 CITF 對話 CHATS



疫情嚴重，愈趨收緊的社交距離措施，為項目經理帶來了前所未有的挑戰。除了運用智能設備實施工作區隔離、追蹤接觸者，預測對工程的潛在阻礙之外，還有哪些其他輔助技術可以在這個新常态為我們的建造業提供幫助？在2019冠狀病毒病的影響下，遙距控制技術可以說是為處於兩難的承包商提供及時雨 - 確保工人的健康和 safety，同時兼顧工程進度。

在這個困難時期，能夠將勞動密集的工作改為一人操作模式的遙距控制技術為業界帶來龐大效益。我們揀選了一些預先批核產品的資料，協助您減少工地職員/工友之間的接觸，同時維持工地的生產力。

At the acute outbreak of pandemic, tightening social distancing measures have made the work of project managers ever challenging. Further to tapping onto smart devices to implement work zone segregation, facilitate contact tracing and anticipate probable project disruptions, what other assistance technologies can render to our construction sector in this new normal? In the wake of the Covid-19, remote-control technologies may provide timely help to contractors who are thrown into the dilemma - ensuring the health and safety of workers while keeping the work progress on schedule.

Remote-control technology can be immensely helpful at this difficult time as it converts labour-intensive job to a one-person task. We have gathered below information of some pre-approved products enabling you to reduce face-to-face interactions between site personnel while preserving productivity.

特維克迷你侖山自動鑽機 SANDVIK Top Hammer Drill Rig (PA20-004)

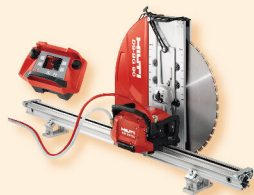
如何運作？ How it works?

- 這是一台全遙控、液壓及自動推進的鑽機，包括3個主要部件：鑽機、鑿岩機和鑿岩工具
- 一般應用於地基鑽孔、開路、挖坑及地盤開鑿硬石之用
- TIMi系統可實時監控鑽孔的鑽孔垂直度和傾斜角度
- A remote-controlled, hydraulic and self-propelled drilling unit comprising 3 main components: a drill rig, a rock drill and rock tools
- Applicable for foundation drilling, road cutting, trenching, and line drilling in dimensional stone quarries
- TIMi aligning system enable real-time monitoring of drilling straightness and incline angle of drill holes



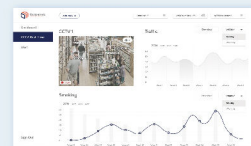
喜利得 DST 20-CA 牆鋸 Hilti DST 20-CA Wall Saw (PA19-029)

- 配備金剛石鋸片的水冷電動自動切割機
- 適用於切割輕度至高度密集鋼筋混凝土以及石材、磚塊或礦物基材料
- 最大切割深度為73厘米
- 鋸片直徑介於60厘米和160厘米之間
- A water-cooled, electrically-powered and automatic cutting machine equipped with diamond-tipped saw blades
- Applicable for cutting lightly to heavily reinforced concrete as well as stone, brick and block or mineral-based materials
- Maximum cutting depth of 73 cm
- Diameters of saw blades range between 60cm and 160 cm



建築工地人工智能計算機視覺雲viAct Artificial Intelligence Computer Vision Cloud viAct (PA19-045)

- 建基於場景模擬的人工智能技術，特別適用於工地監察管理，包括監察個人防護裝備規格、車輛出入情況、材料管理、工程進度等。
- 檢查工人的個人防護裝備，包括安全帽、反光衣、制服和安全帶。透過自動信息發放系統提醒工人和相關人員以作跟進。
- 統計工地現場人數及工人於每個區域停留的時間。
- 在所有限制區域或密閉空間啟動面部識別功能並生成警報以監測未經授權的進入。
- 通過人工智能和閉路電視系統識別工人的墮下動作並發出警報。
- Scenario-based AI technology specialising in construction site monitoring management including PPE compliance, vehicle access control, materials management, progress tracking and etc.
- Detect workers' PPE including safety helmet, reflective vest, uniform and safety belt. Generate auto reminders to workers and to relevant parties for follow up.
- Count numbers of people on site and keep track of duration of stay in each area.
- Apply facial recognition in all restricted areas or confined space and generating alert when detecting unauthorized access.
- Alert on falling motion of people via AI and CCTV system.



有甚麼幫助？ How it helps?

與傳統機械相比，山特維克迷你侖山自動鑽機能達致：

- 降低油耗50%
- 降低總鑽探成本25%
- 提高生產力15%

As compared to down-the-hole drilling, SANDVIK Top Hammer Drill Rig achieves:

- 50% reduction in fuel consumption
- 25% reduction in total drilling costs
- 15% increase in productivity

- 可靠而方便的開孔和擴孔工具
- 精確拆卸，實時顯示切割深度
- 設有CutAssist系統的免提操作
- 內置控制電子設備取代額外電箱
- 低振動和噪音干擾
- 無線遙控

- Reliable and convenient cutting and extending openings
- Precise demolition with real-time display for cutting depth
- Hands-free operation with integrated CutAssist system
- On-board control electronics to replace separate electric box
- Low vibration and noise disturbance
- Wireless remote control

- 借助無線遙控監控工地和工人情況
- 於儀表板上視覺化工地人員分佈，以進行工地人群管理
- 發出安全警報以消除潛在風險和事故
- 追蹤工人的不當行為以進行事故或意外調查
- 避免工人進入限制或危險區域
- 當收到墮下動作監測警報，可立即施展救援。

- Tap on wireless remote control to monitor site and workers situation
- Visualise site workers distribution on Dashboard for on-site crowd management
- Issue safety alert to eliminate potential risks and accidents
- Track worker's unsafe behaviors for incidents or accidents investigation
- Prevent workers from entering restricted or dangerous areas
- Enable immediate rescue on alerts of workers' falling motion on site

申請者使用心得 Users' feedback

安達樓宇地基有限公司：「大大提高了生產效率、工作質量，減少了工作失誤。已經推薦給我們的合作夥伴了！」

Progressive Building & Foundation Co. Ltd - "Highly improves the productivity, work quality and reduce error of work. Already referred it to our partner!"

科昌工程發展有限公司：「提高工作生產力和效率，特別是對於涉及鋸切牆身甚至某些電線的大規模拆除工程」

Fong Cheong Engineering Development Co., Limited - "Enhance work productivity and efficiency particularly for large scale demolition involving sawing work of wall and even certain wire."

瑞安承建有限公司：「協助減少工地人員之間不必要的互動，並將面對面的接觸時間減少50%。有效減輕安全主任/前線管工監督工人的工作量。值得推薦！」

Shui On Building Contractors Limited - "Helping us to minimise unnecessary interactions between site personnel and reduce face-to-face contact time by 50%. Effectively alleviate the workload of the safety officers / frontline foremen in supervisory duty. Highly recommend!"



(852) 2100 9000
(852) 2100 9090
enquiry@cic.hk
<https://www.citf.cic.hk>



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