Comprehensive Description of the Document's Content - This document is a digest titled "CITF Digest". The main content is divided into two articles:

1. **Welcoming Message**: This section is titled "欢迎辞 Welcoming Message" and contains the following paragraphs:
   - "世界正處於第四次工業革命，而建造業將要歷經其他先進行業，多採用創新科技。為了鼓勵建造業更廣泛採用新科技，政府特別行政區政府成立了10億元的建造業創新及科技基金，支援業界走向自動化、工業化和數碼化，從而提升生產力、建造質素、工地安全及環保效益。
   - 「創新」不應限於硬體的應用，人培訓亦不容忽視，因此基金除了支援科技應用，亦會資助業界人員參與先進建築科技的相關課程及活動，促進業界和大專學生掌握科技應用的能力。
   - 基金於2018年10月推行至今已有8個月，業界反應非常正面。我們共收到817份申請，其中506份申請已獲批，資助金額總額約1億港元。受資助的項目包括建築信息模擬技術（BIM）、統合成建築法（MIC）、預製鋼筋組件、以及先進建造科技如鐳射掃描技術、物聯網監測等。我們鼓勵業界繼續提交申請基金，使更多工程項目受惠。
   - 預料未來五年，香港的建造工程量會增至三千億元，這將大大考驗我們建造業的承載能力。面對建造成本持續高昂、外籍勞力不足的挑戰，我們一直鼓勵業界跳出以人力為主的運作框架，積極應用創新科技。我們冀望基金的成立可將新技術、新技術帶到建築業，協助行業轉型革新，攀上另一個高峰。

2. **Build Hong Kong with Innovation and Technology**
   - "Build Hong Kong with Innovation and Technology" is a section that begins with: "Amid the sweeping tide of the fourth industrial revolution, the construction sector needs to embrace innovative technologies to catch up with other advanced industries. To encourage a widespread adoption of new technologies in the construction industry, the Government of the Hong Kong Special Administrative Region has set up a HK$1 billion Construction Innovation and Technology Fund ("CITF") to help boost productivity, uplift quality, improve site safety and enhance environmental performance via automation, industrialisation and digitisation.

   - "'Innovation' should not be limited to acquisitions of hardware, and talent development is equally important. In addition to supporting technology adoption, CITF will invest in nurturing tertiary students and industry practitioners to attend trainings on innovative construction technologies to better equip and develop our manpower in harnessing technology.

   - Since the establishment of CITF in October 2018, the fund has been very well received by the industry. Up to August this year, we received a total of 817 applications, of which 506 applications have been approved and the funding grant amounts to more than HK$100 million. Funded items include Building Information Modelling (BIM), Modular Integrated Construction (MIC), prefabricated steel components, and advanced construction technologies such as laser scanning technology and IoT sensors. We encourage the industry to continue leveraging CITF to benefit more projects.

   - It is expected that the annual total construction output will increase to more than HK$300 billion per annum over the next five years, which will greatly stretch the capacity of our construction industry. In the face of the challenges of high construction costs and ageing workforce, we have been encouraging the industry to switch from the labour-intensive operations to actively apply innovative technologies in construction projects. We hope that the establishment of CITF will bring new thinking and new technologies to the construction industry, helping the industry to transform, innovate and reach new heights.

   - S H LAM, JP
   - Permanent Secretary for Development (Works)
申請數字  
Application figure

由2018年10月至今已收到800多份申請，500多份申請已經成功獲批。
Counting from October 2018, the application number has reached more than 800 and 500 applications have been approved.

「預先批核名單」大大縮減了審批申請時間  
Pre-approved List reduces the time of application vetting significantly

基金申請者可在預先批核名單內300多個項目中，選擇一個或多個建築信息模擬軟件，建築
信息模擬培訓課程或科技產品，提交基金申請。在收到完整申請資料後，申請「預先批核
名單」項目一般於30個工作日內獲通知申請結果；而申請「非預先批核名單」項目則一般於
60個工作日內獲通知申請結果。

The Pre-approved List has now included more than 300 items of BIM software, BIM training
courses and technologies, among which applicants can submit funding application for
one or multiple items. In general, successful applicants will be notified of application result
within 30 calendar days for Pre-approved list items and within 60 calendar days for non-Pre-
approved List items, both upon receipt of required information.

基金 申請三步  
Application in 3 easy steps

1. 準備好文件開設帳戶
Prepare documents to create an account

2. 選擇申請項目
Select type of application

3. 按「提交」完成
Press “Submit”, then done

基金 申請資格  
Eligibility for application

繳付徵費的承建商
Construction Levy-paying Contractors

註冊專門行業承造商及
Registered Specialist Trade
Contractors and Registered Subcontractors

顧問
Consultants

設於Megabox辦事處的
「建造業創科基金諮詢站」悉心為
有興趣申請者提供一對一諮詢服務。

The CITF Advisory Station at the office in MegaBox provides one-to-one
guidance on CITF applications.

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https://www.citf.cic.hk
推動新時代工程的「新法寶」
Opening “a new door” for implementation of new technology

來得及時

建設業者致力解決包括超支、工期延誤和勞動力短缺等問題，與建築業創新及科技基金（下稱“基金”）推出得非常及時。

我們最近成功獲基金資助在一個建築項目上使用Converge混凝土強度傳感器系統。代表金門建築有限公司申請資助的建築助理項目經理郭慧敏（Cecilia）形容基金是推動新時代工程的一項「新法寶」。「工程通常很難預留資金去嘗試新技術，但有了這筆資助，我們現在可以做到。」Cecilia說。「之前金門幾個工地都對Converge做了一些小型的測試，結果顯示，與傳統的壓縮測試相比，每週能篩混凝土的過程可減少多達一天的時間，從而可以提早進行機械/工作架，以及進行預應力鋼筋拉張的過程，生產力因而顯著提高，對工程項目推進有莫大幫助。」

Concrete Evidence

The CITF comes at a pivotal time, as the construction industry strives to address issues such as cost and programme overruns coupled with a shrinking workforce.

With the financial support from CITF, Gammon Construction Limited has recently implemented the Converge system of concrete strength sensors in a building project. Gammon Assistant Project Manager Cecilia Kwok, who initiated the funding application, described the CITF as opening “a new door”. “It’s often difficult to secure funding for implementation of new technology. But with this funding, we can now do it,” said Cecilia. “Test results of the Converge system on other Gammon sites show that it can save up to one day per pour of concrete compared with traditional cube monitoring. The time saved enables earlier removal of formwork/fakework and stressing of prestressed tendons. This significant improvement in productivity will greatly benefit the project.”

Converge混凝土強度傳感器的運作原理

以往，監測混凝土抗壓強度是需要在工地先收集混凝土樣本，再把樣本送到實驗室進行測試。此方法耗費多，又不能取得實時數據，效率較低。再者，實驗室的環境與工地現場混凝土環境有所不同，樣本保存在實驗室會設置27度的水箱中，而工地溫度則可達攝氏40到50度，而且，樣本樣本的過程亦難免會有人為錯誤，所以實驗室結果顯示的混凝土強度與工地現場的混凝土強度，往往存在落差。

Converge透過實驗技術監測混凝土的強度，為業界提供了低成本、易於使用的技術來監測混凝土強度。該系統由四部分組成（傳感器、數據傳輸盒、轉發器和平板）的數據可通過專用的網絡平台傳送到雲端，監測各方不但可下載和分析實時數據，還可隨時從雲端提取過去的數據，進行比較，確保質量。與傳統的混凝土強度測試相比，Converge可讓業界不再需用人手收集，下載和分析數據，節省了不少施工時間。

How the technology works

In the past, we had to collect cube samples and send them to a lab for testing to monitor the compressive strength of concrete. The inaccuracies and lack of real-time data made this method inefficient. The differences in temperature in standard labs and construction sites - samples are kept at 27°C water tanks in the lab while in-situ temperatures can reach up to 40 – 50°C, combined with inevitable human errors in sample preparation and compaction, also add to the deviation of compressive strength test results if compared with that of the in-situ concrete.

Converge, tapping into the wireless and cloud-based technologies to monitor real-time concrete temperature, provides a low cost and user-friendly way to deduce the compressive strength. The system consists of four parts - sensor, node, hub and platform. With the aid of cloud technology, real-time data can be analysed and visualised via a dedicated platform. Accessibility to historical data also makes record tracking feasible, which facilitates quality assurance. Valuable man-hours on collecting, downloading and analyzing data can be saved, leading to significant time saving.

Wider impact

We hope to gain more support for Converge in the future. “We are confident that there will be wider acceptance of Converge as the clients and consultants will be convinced by its promising result. And the very first step is to bring this new technology to their knowledge.”

Gammon Construction Limited
Innovative technology is changing industry’s mode of operation

The CITF encourages industry players to tap into the strength of construction technologies, which are reshaping the industry’s operations with productivity and efficiency gain, among other benefits. One of the construction technological frontiers is the construction robotics.

One of them is the remote-controlled demolition robots produced by Brokk, ranging from the 500kg Brokk (which gets job done 500-600% faster than with handheld tools) to a five-ton Brokk (as powerful as a 25-ton excavator), still it is surprisingly compact and lightweight, and therefore can be transported easily.

Brokk is the world’s leading manufacturer of remote-controlled demolition robots. Since 1976 the company has developed demolition and maintenance solutions for the construction, cement, mining, metal process, tunnel and the nuclear industry, as well as a variety of demolition solutions for special assignments and projects worldwide.

Safe, Efficient, Versatile & Environmentally Friendly

Demolition at works sites used to rely heavily on manual workforce. The remote-controlled Brokk not only brings along quick deployment and high productivity, but also prevents workers from the risks of harmful vibrations, fumes and extremely-hot environment, and enables the operator to control them from a safe distance.

Brokk demolition robots are versatile, equipped with a three-arm system allowing impressive reach and power in all directions, providing maximum precision and accuracy. Its power-packed electric motor only generates low noise and emits no exhausted fumes.

Now that Brokk is on the CITF pre-approved list, industry practitioners can apply to the CITF to engage this demolition robot in construction projects.

C.Crossfield & Co. Ltd

預告 UPC MING 2019

28-29/10 建築信息模型全接觸 CITF x BIM Gear-up Symposium

5-15/11 基金創科廊 CITF Gallery

5/11 智慧建築研討會暨基金創科廊開幕禮 CITF Smart Construction Symposium cum CITF Gallery

15/11 邀聚 • 建築創科人才研討會 CITF Talent Connect Symposium

17-20/12 2019 建築業創新博覽會 Construction Innovation Expo