



Innovation and Technology Commission

Innovation and Technology Fund

Guangdong-Hong Kong Technology Cooperation Funding Scheme

Guide to Filling in the Application Form

This Guide explains how to complete the application form of the Guangdong-Hong Kong Technology Cooperation Funding Scheme (TCFS) under the Innovation and Technology Support Programme (ITSP) of the Innovation and Technology Fund (ITF).

2. Details of the ITF and TCFS are available at <http://www.itf.gov.hk>. Details on the categories of projects under TCFS and the themes/topics for the 2011 TCFS are at Appendix. The application form and the Guide are based on the application form and the Guide for ITSP projects, with the specific requirements for TCFS in ***bold italic*** for ease of reference. In addition to the information in this Guide and the application form, the Innovation and Technology Commission (ITC) may issue supplementary information and guidelines from time to time. Please check the ITF website to see if there is any updating before submission.

3. If you have any question on this Guide and the application form, please contact -

ITF Secretariat (ITSP Section)
Innovation and Technology Commission
20/F, Wu Chung House
213 Queen's Road East, Wan Chai
Hong Kong
Tel : (852) 2737 2229
E-mail : enquiry@itc.gov.hk

General

1. Before filling in the application forms, applicants are requested to read the paper “Creation of a Favourable Ecological Environment to Facilitate the Realisation of Research and Development Results” endorsed by the Commerce and Industry Panel of the Legislative Council in November 2010 (ref. LC paper no. CB(1) 389/10-11(05)) available from :
<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci1116cb1-389-5-e.pdf>.
2. *The TCFS aims to enhance the level of collaboration on research and development (R&D) between organisations in Hong Kong and Guangdong Province [and Shenzhen]. Details on the categories of projects under TCFS and the themes/topics for the 2011 TCFS are at Appendix. Applications which do not fall under the themes/topics will not be considered.*
3. Broadly the TCFS provides funding support for two major types of applied research and development (R&D) projects:-

(a) Platform Projects

All platform projects would require industry sponsorship from at least two private sector companies to cover at least 10% of the total project cost within the project period. The companies should not be related to the lead applicant in terms of ownership or management. The sponsorship can either be in cash or in-kind or a combination of both. The intellectual property (IP) rights generated from the project will be owned by the lead applicant which can be a R&D Centre¹ or a designated local public research institute, viz. local universities, Hong Kong Productivity Council, Vocational Training Council and Clothing Industry Training Authority. However, in the case of a R&D Centre project in which the university is undertaking most of the R&D work, the R&D Centre may be free to agree with the university concerning the ownership of the intellectual property.

¹ The R&D Centres include –

- (a) Automotive Parts and Accessory Systems R&D Centre (www.apas.hk);
- (b) Hong Kong Research Institute of Textiles and Apparel (www.hkrita.com);
- (c) Hong Kong Applied Science and Technology Research Institute (www.astru.org), including the Hong Kong Jockey Club Institute of Chinese Medicine;
- (d) Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (www.lscm.hk); and
- (e) Nano and Advanced Materials Institute (www.nami.org.hk).

(b) Collaborative Projects

For collaborative projects, the industry co-applicant should contribute no less than 50% of the total project cost (or no less than 30% in the case of R&D Centre projects) within the project period. The IP rights generated may be owned by the industry co-applicant if it has contributed 50% or more of the total project cost within the project period. If not, the IP rights should be owned by the lead applicant. As regards the IP benefit sharing and related arrangement, it will be subject to negotiation among the parties concerned and will be set out in the project agreement.

In certain areas, there are different requirements for different types of projects. As such, please kindly pay attention to this aspect in filling in the application form.

4. Where the ITF funding for a project exceeds \$21 million, approval from the Finance Committee of the Legislative Council is required.
5. Please use ITF Form 4.0 for applications of platform and collaborative projects under TCFS.
6. ***For Category C projects, the application should be completed in Chinese. The applicant should also enclose the application from its Mainland partner which should be submitted concurrently to the Guangdong/Shenzhen authorities.***
7. Applications must be submitted to the ITF Secretariat (ITSP Section) either:
 - (a) in hard copy in triplicate (one original plus two duplicate copies) in person or by post. Please also kindly provide a soft copy (preferably in MS Word 2003 or above); or
 - (b) through the Innovation and Technology Commission Funding Administrative System (<https://www3.itf.gov.hk>).
8. ITC reserves the right to seek additional information where necessary. Unless on request of the ITF Secretariat, supplementary information provided after submission of application will NOT be accepted and will NOT form part of the application.
9. The lead applicant will be notified of the result of its application in writing. Withdrawal of an application should be made by the lead applicant in writing to ITF Secretariat at any time before the project agreement is signed.

Part A The Applicant

I. Information on Lead Applicant

1. The lead applicant must be an organisation and be either:
 - (a) a R&D Centre set up under the ITF; or
 - (b) a designated local public research institute (viz. local universities, Hong Kong Productivity Council, Vocational Training Council and Clothing Industry Training Authority).
2. The lead applicant should obtain prior consent of parties concerned in filling in the application form.
3. Where an application is successful, the lead applicant will enter into a project agreement with the Government and is required to comply with the terms and conditions therein, including monitoring project progress and expenditure, submission of reports and audited accounts, etc.

II. Information on Industry Co-Applicant

1. For platform projects, there will be no industry co-applicant.
2. Industry co-applicant only exists in collaborative projects, which can either be a private sector company incorporated in Hong Kong under the Companies Ordinance (Cap. 32), or an industry support organisation, a trade and industry association or professional body which has capacity to enter into contracts.

III. Information on Sponsor(s)/Supporting Party(ies)

1. There is no limit on the number of sponsors and supporting parties. It is desirable that letters of support/sponsorship can be enclosed in the application with the company/organisation chop(s).

Part B The Project

I. Key Project Details

(A) Total Project Cost

1. The total project cost is the sum of all estimated expenditure to be incurred (including items to be covered by in-kind contribution) and the administrative overheads as appropriate. Applicants are required to provide details of the project cost items under the section 'Financial Considerations' in Part C of the application form.

(B) Industry Sponsorship and Other Sources of Financial Contribution

1. Industry sponsorship refers to sponsorship from private companies which are not related to the lead applicant in terms of ownership or management and should in general be the user of the project deliverables. To avoid conflict of interest situations, such companies should not be the equipment/service suppliers of the project.
2. Other Sources of financial contribution refers to contribution to the project obtained from various parties, including funding provided by the lead applicant, contribution in cash or in-kind from supporting parties, e.g. charitable organisations, venture capitalists, individuals, etc. It can also include personal contribution by project team members. They shall exclude industry sponsorship as mentioned above and project income.
3. Total financial contribution refers to the summation of industry sponsorship and other sources of financial contribution.
4. Industry sponsorship and other sources of financial contribution can either be in cash or in-kind or a combination of both. In-kind sponsorship in the form of equipment or consumables would only be accepted if:
 - (a) the in-kind sponsorship is essential to the project and is contributed specifically for the project; and
 - (b) documentary proof of the value of sponsorship has been provided to facilitate a fair assessment of the value of contribution, e.g. details of the valuation for new and used equipment and consumables.

Manpower contribution from industry sponsor and industry co-applicant will be counted as other sources of financial contribution but not industry

sponsorship.

(C) Payment Schedule

Platform projects

1. Applicants must obtain industry sponsorship of at least 10% of the project cost from at least two private sector companies to demonstrate reasonable market interest.
2. As a general rule, at least 50% of the pledged industry sponsorship should be paid before the project commences and the remaining sponsorship should be received before the ‘mid-point’ of the project period. Payment of more than 50% of industry sponsorship upfront will be welcomed.
3. For other sources of financial contribution, consideration will be given to allowing greater flexibility on the payment schedule but all contribution must be received by the ‘mid-point’ of the project period.
4. ITF funding will normally be disbursed on a half-yearly basis, subject to satisfactory project progress against the stated milestones and due payment of the industry sponsorship and other sources of financial contribution.

Collaborative projects

5. The industry co-applicant should provide at least 50% of the total project cost (or 30% in the case of R&D Centre projects) within the project period. The ITF funding is released on a matching basis, i.e. the contribution from the industry co-applicant should be made first and the disbursement from ITF will be made afterwards.

(D) Schedule of the Project Period

1. The duration of the project period should not exceed 24 months in general. There is however no minimum requirement.

(E) Related Information

1. The provision of information on previous research work done and attempt to seek funding support from sources other than ITF is to enable us to have a comprehensive understanding of the project proposal, especially relevant work was funded by University Grants Committee (UGC)/Research Grants Council (RGC)'s Areas of Excellence Scheme, Theme-based Research Scheme and Collaborative Research Fund.

II. Brief Description of Project Proposal

(A) Location of R&D Work

1. The R&D work funded under ITF should primarily be conducted within the territory of Hong Kong. However, given the close ties between Hong Kong and the Mainland, up to 50% of the R&D work of an ITF project can be conducted (and relevant expenditure incurred) in the Mainland.
2. Where certain R&D tasks need to be conducted outside Hong Kong (other than the Mainland), prior approval from ITC must be sought with justifications (e.g. countries/provinces/cities/overseas research institutes which have entered into technology collaboration agreements/Memorandum of Understanding with the Government or local universities/R&D Centres).

(B) Project Milestones

1. The project will be monitored against its stated project milestones. The lead applicant is required to submit half-yearly progress reports/final report until project completion. We note that for the first report, there may not be significant progress in terms of R&D deliverables but we hope all preparatory work has been completed (e.g. recruitment of staff, procurement of equipment, etc.).
2. *For Category C projects, the applicant should also set out the relevant milestones of the projects to be carried out by the Mainland partner, where appropriate.*

Part C Justifications

1. The assessment framework comprises 7 components. Their weightings are as follows:
 - (a) Innovation and Technology Component (20%);
 - (b) Technical Capability (20%);
 - (c) Financial Considerations (16%);
 - (d) Existence of a Holistic Plan to Realisation/Commercialisation (16%);
 - (e) Relevance with Government Policies or in Overall Interest of Hong Kong (12%);
 - (f) IP Rights and Benefit Sharing (8%); and
 - (g) Management Capability (8%).

2. In general, the framework aims to achieve the following -
 - (a) encouraging and selecting projects with greater prospect of realisation/commercialisation;
 - (b) facilitating the trial of R&D products (especially in the public sector), so that researchers and industry can gain actual experience to fine-tune their products, build up 'reference' for subsequent marketing, and bring about wider economic and social benefits to the community;
 - (c) motivating the private sector to invest more in R&D activities in Hong Kong; and
 - (d) enhancing co-operation among Government, industry, academia and research institutes (官產學研).

I. Innovation and Technology Component

1. ITF is set up to finance primarily applied R&D projects that contribute to innovation or technology upgrading in industry. The innovation and technology component is hence most important. The project should primarily pertain to applied research with its deliverables having a reasonable chance for application in due course.
2. Upstream research will not be accorded priority since this is more within the ambit of RGC funding. However, if funding by RGC has taken a project from the stage of foundation research to the stage of applied research, for instance, in the Areas of Excellence Scheme, we can consider funding under ITF. This will provide continued support to the R&D activity as well as establishing better interface between the two key funding sources. The lead applicant should provide letters of support from the UGC/RGC Secretariat as appropriate.

(A) Nature of the project

1. On whether the project will give rise to new technologies or products, we will not always require 'rocket' science research, but will consider in the overall sense if the R&D can bring about benefit to Hong Kong. While ITF funding is primarily for the benefit of Hong Kong community, and hence the Hong Kong angle would be of greatest importance, we will take a boarder view in the field of innovation and technology - if a project may not bring a lot of benefit to the Hong Kong community but will bring benefit to mankind, we will give reasonable regard (e.g. crop research to solve the problem of food shortage).
2. On whether the project will enhance quality of existing products (e.g. capacity, reliability, speed, etc.), the applicant should set out the magnitude of improvement.
3. On whether the project will render cost more competitive, the lead applicant should provide an estimate on the degree of improvement.
4. *Applicant should highlight the element of Guangdong/Hong Kong cooperation in the project proposal (e.g. collaboration between research institutes and enterprises in Guangdong/Shenzhen and Hong Kong)*

II. Technical Capability

(A) Viability of technical proposal and quality of technical submission

1. The viability of the technical submission refers to whether, at the current point in time, the technical proposal is reasonably viable.
2. While the majority of research work should be done locally, there will be a degree of flexibility. It is acceptable that the R&D team obtains certain component(s) of technology/product available overseas and builds its own research on top of this, or contracts out certain component(s) of the research work. Whilst there is no need to 're-invent the wheel', one must consider the nature and extent of any technical improvement and whether such improvement merits IP protection. However the IP angle must be sorted out appropriately. In addition, the degree must be within a reasonable limit.
3. In assessing the quality of the technical submission, factors such as technical approach to the problem, accuracy of technical data, reasonableness of assumptions, etc. will be considered.

(B) Competence of technical team

1. This refers to the ability to instil confidence that the project coordinator and his team will be able to deliver the proposed project fully on the technical side (e.g. background and experience of the research team and feasibility of the R&D work plan).
2. In assessing the research team, apart from studying the CVs of individual members, we will consider whether the overall size of the team, the mix of staff at various levels, etc. are appropriate. If the team as a whole has good track record in the past, it will be favourably considered.
3. The lead applicant is welcome to provide all relevant information to support the application e.g. industry and academic awards won in the past, endorsement of outstanding experts in the field, etc.

III. Financial Considerations

The lead applicant should ensure that all financial information has been provided in this section and the basis of calculation is reasonable.

(A) Project Expenditure

1. The lead applicant should provide a breakdown of the estimated project expenditure to be incurred during the project period.

(a) Manpower

- (i) Project funding can be used to cover the salary of project staff, including employer's mandatory contribution to the Mandatory Provident Fund (MPF), contract gratuities, annual salary adjustment (excluding increments and promotion) and general fringe benefits (e.g. medical) in accordance with the established mechanism of the relevant R&D Centres and designated local public research institutes.
- (ii) ITF will not fund the emolument to a person who is already on the payroll of local universities (i.e. existing teaching staff). However, administrative overheads will be provided to a university undertaking the project, see part (d) below.
- (iii) The lead applicant is required to seek prior consent from ITC for any change in the key project staff i.e. project coordinator and deputy project coordinator.

(b) Equipment

- (i) The lead applicant should critically examine how the equipment required for the project can be obtained in the most economical manner:
 - where there is existing equipment, the applicant should first make use of that;
 - where it is cheaper to rent than to purchase, the applicant should proceed to rent; or

- where new equipment is really necessary, it can be purchased. The applicant should supply information on the expected usage rate of the equipment e.g. usage time vs. down time and the plan for alternative use after project completion or disposal.

We will take into account expected usage rate, mode of acquisition (purchase vs. rental), future use/divestment (e.g. for teaching/research purposes at one or more university) to ensure greatest possible cost effectiveness. Where necessary, ITC will require the applicant to transfer any equipment whose acquisition cost is \$500,000 or above to the Government or another party (e.g. Hong Kong Science and Technology Parks Corporation) within a period of two years after project completion.

- (ii) The lead applicant and Project Coordinator are encouraged to share the use of existing equipment within their organisations or with other organisations where possible (e.g. local universities and Hong Kong Science and Technology Parks Corporation).
- (iii) Individual equipment or parts that will eventually form part of the project deliverables (e.g. the prototype) are regarded as consumables and the relevant cost should be grouped under other direct costs.
- (iv) The lead applicant is required to seek prior consent from ITC for change in any equipment with an estimated cost of \$500,000 or above per item.
- (v) Project funding cannot be used to cover –
 1. charges/time cost for use of existing equipment already owned by the applicants or industry co-applicant;
 2. depreciation/amortisation or provisions not representing actual expenses incurred; and
 3. general office and IT equipment.
- (vi) The lead applicant should ensure that all procurement for goods and services is carried out in an unbiased and fair manner and must comply with the following procedures, or with the established mechanism of individual public research institutes:

Aggregated value of each procurement	Requirement
Below \$50,000	Quotations from at least two suppliers
\$50,000 - \$1,430,000	Quotations from at least five suppliers
Above \$1,430,000	Open tender

(c) Other Direct Costs

(i) Project funding can be used to cover –

1. external consultancy;
2. purchase of consumables and technology licences;
3. promotion and marketing activities for disseminating project deliverables and technology transfer;
4. patent registration fee up to \$150,000 per project (except for collaborative projects where the IPs are owned by the industry co-applicant); and
5. external audit fees as required by the ITF project agreement. (The maximum provision allowed for a project costing less than \$1 million, between \$1 million and \$5 million and more than \$5 million should not exceed \$8,000, \$14,000 and \$20,000 respectively.)

(ii) Project funding cannot be used to cover other costs like –

1. building facilities (including office, laboratory, accommodation) – rates, rental, renovation, and operation, repair and maintenance expenses;
2. costs of setting up office or forming association/consortium;
3. utilities – charges for electricity, gas, water, telephone and fax;

4. transport – shuttle bus services and home to workplace travelling expenses;
5. general administration and office expenses;
6. staff-related costs – provident fund handling charges, staff training and development costs and staff facilities;
7. entertainment expenses, and any prizes, either in the form of cash or other types of souvenirs;
8. advertisement (except for disseminating project deliverables, or staff recruitment);
9. organisation of trade missions and participation fees at study/trade missions for individuals/companies;
10. charges for non-R&D services (e.g. accounting, personnel, procurement, library, security, cleansing, legal, and central and departmental administrative support) provided by the lead applicant/industry co-applicant or their contractors/agents; and
11. capital financing expenses, e.g. mortgage and interest on loans/overdrafts.

(d) Administrative Overheads

- (i) For platform projects undertaken by local universities and the Vocational Training Council, the application can include administrative overheads up to 15% of the ITF funding requested (i.e. net of administrative overheads). For collaborative projects, the amount will be calculated at 15% of the approved project cost. Industry co-applicant is required to pay its share of administrative overheads proportional to its contribution to the project. For example, if the industry co-applicant contributes 50% the project cost, it will be required to contribute 50% of the administrative overheads while ITF contributes the remaining.
- (ii) The administrative overheads should be included as part of the project expenditure. The lead applicant and project coordinator are welcome to absorb the cost itself and not apply for ITF.

(B) Industry Sponsorship/Other Sources of Financial Contribution

1. The minimum industry sponsorship remains to be 10% of the total project cost for platform projects and 50% of the total project cost for collaborative projects (30% of the total project cost in case of R&D Centre projects). But in general, the higher degree of contribution, the stronger industry interest in the project and hence the greater chance of success to commercialisation.
2. Apart from sponsorship from the industry, there may be other sources of financial contribution provided by the lead applicant, contributions from supporting parties, e.g. charitable organisations, venture capitalists, individuals, etc. It can also include contribution by project team members. However, other sources of financial contribution may not include industry sponsorship and project income.
3. The lead applicant is required to provide details on industry sponsorship and other sources of financial contribution.
4. Under the Research & Development (R&D) Cash Rebate Scheme, industry sponsorship (including sponsorship contributed by industry co-applicant under collaborative projects) by a private sector company towards an ITF project is eligible for cash rebate. Further information on the R&D Cash Rebate Scheme are available at <http://crs.itc.gov.hk>.

(C) Project Income and Residual Funds

1. All ITF funding, industry sponsorship, other sources of financial contribution, project income received during the project period should be credited to the project account and be used for offsetting project expenditure. After completion of the project or its earlier termination, the lead applicant shall return to the Government all unspent funding contributed by the Government, all residual project income and interest income in the project account, and any other income under the IP rights benefit sharing as set out in the project agreement.

IV. Existence of a Holistic Plan to Realisation/Commercialisation

1. In the context of ITSP, “Realisation” refers to the R&D product(s) being used in the public sector. There may not be market in the commercial world (e.g. specialist equipment for certain law enforcement agencies); whereas “Commercialization” refers to the R&D product(s) being launched/sold in the commercial world. It may not always be necessary to prove that the product will reach the ‘consumer’ market. Just pushing it step(s) down the process of commercialisation will be acceptable.
2. To enhance the chance of realisation/commercialisation, the applicant should provide information such as:
 - (a) at what stage the R&D project is (from concept inception to realisation);
 - (b) future positioning of the technology/product in the market and potential market winner;
 - (c) what will be the exact deliverables/milestones (both qualitative and quantitative) and at what time frame;
 - (d) whether ITF funding will be required for a further phase of research work;
 - (e) whether there are associated/complementary technology development projects which will add to chance of realisation i.e. the proposed cluster project approach; and
 - (f) whether there are competitors and analysis of their strengths/weaknesses/opportunities/threats (i.e. SWOT analysis).
3. The applicant should where appropriate supply letter(s) of support e.g. -
 - (a) from company(ies) interested to take out a license of the project deliverables for further development;
 - (b) from manufacturer(s) interested to produce the product in large scale; or
 - (c) from Government departments or public bodies.

V. Relevance with Government Policies or in Overall Interest of Hong Kong

1. Apart from serving the industry, we will be interested in technologies that will dovetail Government policies bringing benefit to the community at large, e.g.:
 - (a) R&D that can support important Government initiatives e.g. environmental protection and healthcare;
 - (b) R&D that can bring great social benefit e.g. creating devices to help track Alzheimer patients to relieve stress of their family members;
 - (c) R&D that can contribute to upgrading of industry e.g. cleaner method of production;
 - (d) R&D that can provide opportunities for training of local scientific personnel;
 - (e) R&D that can foster close collaboration among key stakeholders (官產學研); and
 - (f) R&D that can enhance the image of Hong Kong internationally.
2. For projects that will involve activities/expenditure outside Hong Kong (e.g. the Mainland), the lead applicant should provide details to demonstrate the 'Hong Kong angle' i.e. benefits that will be enjoyed by the Hong Kong community.
3. The Government is keen to train up local scientific personnel. Hence, we hope the R&D team will mainly comprise local staff. However, should it be necessary to engage overseas expertise, provided that it is within a reasonable limit, it can also be considered.

VI. IP Rights and Benefit Sharing

While seeking a reasonable financial return from commercialisation, we will allow the necessary flexibility to motivate various stakeholders. In fact, it should be stressed that the ITF is set up to fulfil the public mission of promoting innovation and technology and monetary return is not the only consideration.

1. The applicant will be required to provide information on:
 - (a) whether the R&D result will be ‘patentable’ or protected by other IP rights and its plan;
 - (b) whether there is any plan for spin-off in due course and if so, the details;
 - (c) the proposed formula of benefit sharing among all parties concerned (e.g. licence fee and royalty); and
 - (d) whether it will provide unrestricted use of the technology by relevant Government departments/public bodies.

Platform Projects

2. The lead applicant, which in general will be a R&D Centre or a designated local public research institute, will normally own all IP rights arising from the project. (In the case of R&D Centre projects, the Centres may allow the universities undertaking the research work to retain the IP rights ownership arising from the projects to facilitate technology transfer and commercialisation.) ***For Category C projects, the applicant should set out the ownership of the IP to be generated from the project and IP benefits sharing among all parties concerned, including Mainland partners.*** The lead applicant and/or the relevant designated local public research institute are required to disseminate the project deliverables and promote technology transfer to industry through workshops, seminars, licensing or consultancy, etc.
3. The lead applicant should try to generate income by charging fees for project deliverables so as to recoup at least part of the project cost.
4. The Government shall enjoy a royalty-free right to use the IPs as appropriate.
5. Exclusive use of the project deliverables is not allowed (e.g. exclusive licence or outright transfer of IP rights ownership to another third party) unless with

prior consent from ITC, in which case the applicant will normally be required to follow a competitive process.

Collaborative Projects

6. If the industry co-applicant has actually contributed more than 50% of the total project cost within the project period, the industry co-applicant will take ownership of the IP rights of the projects. Otherwise, the lead applicant should retain the ownership. The industry co-applicant may indicate whether consent will be given for unrestricted use of the R&D results under the project for development for use in the public sector (including Government and public bodies, e.g. Hospital Authority) in Hong Kong in future.
7. The arrangements for benefit sharing (including financial income from the project) should be agreed among parties concerned e.g. R&D Centres/research institutes/industry partners. In general, supporting parties making other sources of financial contribution are not entitled to benefit sharing.

Indemnity

8. If the project involves using background IPs of a third party, the applicant should indicate in the application form whether the consent/licence for use of such IPs has been obtained. The applicant shall indemnify and keep indemnified the Government against any claims, actions, investigations, demands and all liabilities arising from the use of such IPs on the term set out in the project agreement.

VII. Management Capability

1. Management capability is wider than technical capability. It pertains to whether the applicant and his entire 'backup' can instil confidence in its ability to bring the whole project to fruition. For example, apart from the research team, whether the technology transfer office of the university will devote effort to bring it to realisation, or whether it has the support of companies already well established in the market.
2. The capacity of the project team will be considered having regard to its commitments in other areas including on-going ITF projects.
3. We will also where appropriate review the track records to see if the applicant has delivered in previous applications.

ITF Secretariat (ITSP Section)
Innovation and Technology Commission
August 2011

**2011 Guangdong-Hong Kong
Technology Cooperation Funding Scheme**

Introduction

To strengthen technology development between Hong Kong and Guangdong, the governments of the Hong Kong Special Administrative Region (HKSAR) and Guangdong Province jointly set up the Guangdong-Hong Kong Technology Cooperation Funding Scheme (TCFS) in 2004 as a key cooperation initiative to encourage collaboration among universities, research institutes and technology enterprises in the two places. The Shenzhen Municipal Government joined the TCFS in 2005.

2. Under the 2011 TCFS, the governments of HKSAR and Guangdong Province invite R&D project proposals under the specific themes/topics in technology areas of common interest at **Annex A** and provide funding support to approved projects.

Categories of Projects

3. There are three categories of projects for application under the TCFS, namely -

(a) **Category A** – projects to be solicited, vetted and funded solely by Hong Kong -

(i) **Category A(1)** – projects to be solicited, vetted and monitored by the R&D Centres¹; and

¹ They are – (a) Automotive Parts and Accessory System R&D Centre (APAS);
(b) Hong Kong Applied Science and Technology Research Institute (ASTRI);
(c) Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM);
(d) Hong Kong Research Institute of Textiles and Apparel (HKRITA); and
(e) Nano and Advanced Materials Institute (NAMI).

- (ii) **Category A(2)** – projects to be solicited, vetted and monitored by the Innovation and Technology Commission (ITC)
- (b) **Category B** – projects to be solicited, vetted and funded solely by Guangdong or Shenzhen.
- (c) **Category C** – projects to be jointly solicited, vetted and funded by Guangdong and Hong Kong –
 - (i) **Category C(1)** – projects jointly funded by Guangdong and Hong Kong; and
 - (ii) **Category C(2)** – projects jointly funded by Shenzhen and Hong Kong.

Category C – Joint Funding

4. An application of the same project under Category C should be submitted simultaneously by the participating organisations to the respective authority in Hong Kong and Guangdong (or Shenzhen). The processing and preliminary vetting will be conducted separately by the two sides. The results of the preliminary vetting of the two sides will then be submitted to a joint vetting committee comprising officials from both sides for a final decision on the projects for joint funding support. The approved projects will be monitored by authorities of the two sides respectively, and may also be subject to joint monitoring by the authorities of the two sides.

5. Please note that deadlines of submission of project proposals set by Guangdong authorities on Category C(1) and Shenzhen authorities on Category C(2) are **29 August 2011 (Monday)** and **16 September 2011 (Friday)** respectively.

Enquiries

6. For enquiries about applications under Category A(1), please contact the R&D Centres direct –

R&D Centres	Contact Persons
Automotive Parts and Accessory Systems R&D Centre	(1) Mr C H Leung Tel : 2788 5311 Fax : 2788 5406 E-mail : chleung@apas.hk (2) Mr Haydn Yik Tel : 2788 5316 Fax : 2788 5406 E-mail : haydneyik@apas.hk Website : www.apas.hk
Hong Kong Applied Science and Technology Research Institute	Prof Peter Yum, Chief Technology Officer Tel : 3406 2549 Fax : 3406 2801 E-mail : peteryum@astri.org Website : www.astri.org
Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies	(1) Dr David Leung Tel : 2299 0587 Fax : 2299 0552 E-mail : dleung@lscm.hk (2) Ms Elaine Yu Tel : 2299 0538 Fax : 2299 0552 E-mail : eyu@lscm.hk Website : www.lscm.hk
Hong Kong Research Institute of Textiles and Apparel	Dr Kai-chiu Ho Tel : 2627 8188 Fax : 2364 2727 E-mail : kcho@hkrita.com Website : www.hkrita.com
Nano and Advanced Materials Institute	Dr Chris Chan Tel : 2358 8172 Fax : 2358 8113 E-mail : nami.rd@nami.org.hk Website : www.nami.org.hk

7. For enquiries about applications under Category A(2) and Category C, please contact Innovation and Technology Commission:

Contact persons:

- Mr KL Ng (Tel : 2111 3154, Fax : 2377 0730,
E-mail : klng@itc.gov.hk); or
- Mr Summer Lau (Tel : 2737 2282, Fax : 2957 8726,
E-mail : skclau@itc.gov.hk)

8. The contact details of the Guangdong and Shenzhen authorities are as follows - -

(1) Guangdong

Mr. GUO Xiuqiang
Guangdong Science and Technology Department
Website : www.gdstc.gov.cn
Tel : 86 20-8316 3874

(2) Shenzhen

Ms. CHEN Ying
Science, Industry, Trade and Information Commission of
Shenzhen Municipality
Website : www.szstic.gov.cn
Tel : 86 755-8210 7383

**2011Guangdong-Hong Kong
Technology Cooperation Funding Scheme**

Specific Themes/Topics

Category A(1) – Applications should be sent to the respective R&D Centres shown in brackets under the themes/topics.

Themes/Topics	Code Number
(a1) New concept production-intent electric vehicle development.	1
(a2) Development and application of vehicle-infrastructure integration technologies based on broadband wireless Internet of Things – in the context of Hong Kong-Guangdong cross-border transportation. (The Hong Kong Automotive Parts and Accessory Systems R&D Centre)	2
(b1) Innovative textile materials: (i) harmless & environment-friendly natural & man-made fibres with multi-functionalities, (ii) interactive intelligent textile material, and (iii) textile composite material.	3
(b2) Energy-saving and environmental-friendly production system and material: (i) innovative textiles and clothing production system to save energy/fuel consumption, (ii) environmental-friendly textile dyestuff and chemical, and	4

Themes/Topics	Code Number
<p>(iii) quick testing technology for toxic and harmful textiles and clothing products.</p> <p>(The Hong Kong Research Institute of Textiles and Apparel (HKRITA))</p>	
<p>(c1) Research and development of technologies and applications for cross-boundary collaboration in logistics, manufacturing, supply chain management, healthcare, retail industries, etc.</p>	5
<p>(c2) Research and development of Internet-of-Things (IoT) technologies and applications to foster industry adoption.</p> <p>(Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies)</p>	6
<p>(d1) Technology for facilitating cross border trade.</p>	7
<p>(d2) Intelligent and interactive display technology.</p>	8
<p>(d3) Core technology research platform for intelligent cities.</p>	9
<p>(d4) Integrated circuits design:</p> <p>(i) Integrated circuits and solutions for internet of things, and</p> <p>(ii) Integrated circuits and solutions for green energy.</p> <p>(Hong Kong Applied Science and Technology Research Institute)</p>	10
<p>(e1) Nano/advanced materials and technologies for sustainable energy:</p> <p>(i) Energy storage technologies such as next generation battery materials, and</p> <p>(ii) Renewable energy such as solar cell technologies</p>	11
<p>(e2) Nano/advanced materials and technologies for display and</p>	12

Themes/Topics	Code Number
solid-state lighting. (e3) Construction/building nano and advanced materials.	13
(e4) Nano/advanced materials and technologies for environmental applications: (i) wastewater treatment, and (ii) air remediation.	14
(e5) Nano/advanced materials and technologies for medical devices and healthcare applications. (Nano and Advanced Materials Institute)	15

Category A(2) – Applications should be sent to the Innovation and Technology Commission.

Themes/Topics	Code Number
(a) Biotechnology.	16
(b) Research and development of modern Chinese medicines and technologies.	17
(c) Environmental technology: (i) Development of novel technologies for low cost and compact localized sewage treatment, (ii) Development of new reduced greenhouse gas emission and cost effective technologies for waste treatment, and (iii) Air purification system using natural interaction of soil and soil microbes with air pollutants to remove pollutants from the roadside environment.	18

Themes/Topics	Code Number
(d) Advanced electronics technologies (including transducers and medical electronics).	19
(e) Development of advanced manufacturing/processing technologies.	20
(f) Enabling technologies for information technologies (including network security, communications, internet, e-commerce, etc).	21
(g) Energy management technologies.	22
(h) Testing and certification.	23

Categories C(1) and C(2) - Applications should be sent to the Innovation and Technology Commission. For Category C(1), please refer to *Annex B* for the requirements of the themes under this category.

Themes/Topics	Code Number
Category C(1)	
<p>(a) Research and application of key technologies to link up the industry, academic and research sectors:</p> <ul style="list-style-type: none"> (i) research and development and applications of the terminal products of next-generation fixed-mobile convergence technologies, (ii) development and industrialisation of small-sized AMOLED technologies, (iii) key technologies and equipment for intelligent industrial robots, (iv) key technologies for service robots and their industrialisation, (v) research and development of key technologies and manufacturing equipment for heat exchangers of air conditioners, and (vi) industrialised applications of light weight composite materials and structures in the transport industry. 	24
<p>(b) Research and applications of key Internet-of-Things (IoT) technologies in Hong Kong and Guangdong:</p> <ul style="list-style-type: none"> (i) cross-border water-quality monitoring, (ii) research and application of key technologies for testing large-scale wireless sensor network, (iii) research and application of an intelligent food safety traceability system, 	25

Themes/Topics	Code Number
(iv) research and application of key medical monitoring technologies based on the Internet-of-Things, and (v) research and industrialisation of key generic technologies on professional logistics based on the Internet of Things.	
Category C(2)	
(a) Internet technologies.	26
(b) Research and development of biomedicine.	27
(c) New energy and energy saving technologies.	28
(d) Integrated circuits and novel electronic devices.	29
(e) Research and application of high performance luminescent materials.	30
(f) Advanced manufacturing.	31
(g) Medical devices.	32
(h) Biotechnologies for enhancing food safety.	33

2011 年粵港科技合作計劃

C(1)類主題要求

(a)產學研結合關鍵技術研究與應用

(i) 下一代固定移動融合終端產品研發及應用

背景

在新一代網路時代，終端是承載互聯網新型業務的基礎。廣東省有線和無線寬帶網路基礎設施全國領先，業務需求量大，新型信息服務業前景廣闊，但在廣東乃至全國，能夠有效融合固定網路和移動網路的綜合業務處理終端產品匱乏，本項目的實施可有效突破廣東乃至全國新一代信息終端核心技術，有利於提升廣東省終端產業的核心競爭力和危機抵禦能力，搶佔下一代固定移動互聯網終端設備產業發展的制高點，保持廣東省終端技術和產業優勢在國內的領先地位和國際先進地位。

目標與內容

目標：基於內地已有的 CPU/SoC、操作系統和其他基礎軟體技術和產品積累，突破國產 CPU 和 OS 的優化適配和集成技術，充分發揮廣東省整機製造優勢，鼓勵芯片提供企業、終端設計製造企業以及終端應用和運營企業聯合構建基於國產核心計算芯片的新型互聯網終端產業鏈，形成具有競爭力的新一代融合終端產品及應用，配合廣東省的十二五科技發展戰略，推進國產晶片產業化，打造高端電子信息產業集群，助力廣東省互聯網計算設備的產業化發展。

內容：基於國產 CPU 的計算體系結構，研發下一代固定移動融合互聯網終端產品；支援安全可靠的固定移動寬帶網路訪問機制，支持作業系統級別的用戶信息安全保護，具備開放式的終端應用開發能力，提供多點觸控和手寫輸入，具備辦公、娛樂、商務和多媒體等功能，終端螢幕 7 英寸以上。以佔領市場和形成大規模銷售為目標，實現國產 CPU 在新一代寬帶互聯網終端類產品中的大批量應用。

主要驗收指標

1、終端主處理器要求：

- (1) 國產 CPU；
- (2) 主頻支援 1.5G 及以上的處理能力；
- (3) 支援 1G 以上 LPDDR\DDR2\DDR3 的內存；
- (4) 2D/3D 圖形處理能力支持 OpenGL ES2.0 和 OpenVG1.1；
- (5) 1080P 多格式視頻播放能力；
- (6) 支援 SATAII 硬盤接口可外接大容量儲存。

2、支援國產操作系統或開源操作系統的優先考慮。

3、推薦的終端指標包括但不限於：

- (1) 螢幕尺寸： ≥ 7 英寸，標準分辨率： $\geq 1024 \times 600$ ；
- (2) 存儲容量： $\geq 8GB$ ，擴展卡容量： $\geq 16GB$ ；
- (3) 接口支持 USB 2.0、HDMI 接口、3.5mm 耳機接口；
- (4) 支持前後置雙攝像頭；
- (5) 支持固定和移動寬帶網路接入，有線寬帶支持 xDSL、LAN 接入，無線寬帶支援 Wifi\WAPI、EVDO、WCDMA 和 TD-SCDMA 等 3G 接入；
- (6) 支持固定電話和移動 2G/3G 電話服務；

- (7) 為促進應用場景的多樣化，終端支持多類型外設擴展技術；
- (8) 續航時間超過 6 小時（具體時間視使用環境而定）；
- (9) 支援多點觸控輸入。

4、其他要求包括：

- (1) 具備操作系統級別的用戶信息安全保護機制，為安全應用提供內存和存儲的隔離機制，為設備丟失提供數據保護解決方案；
- (2) 提供安全和完善的用戶接入鑒權認證和應用安全保護機制；
- (3) 構建統一開放的應用開發和運行環境，提供跨終端平臺的應用中間件，以滿足用戶一次性應用開發適應多形態終端設備的需求；
- (4) 實現產業化，項目成果要求在運營商網絡平臺進行示範應用，終端銷售達到 10 萬台，市場單價控制在 2000 元人民幣以下，拉動經濟效益達 2 億元人民幣以上；
- (5) 項目的關鍵技術和產品的整體性能要有明顯的創新性和先進性，對提升行業技術水平和促進產業升級具有積極作用；
- (6) 項目成果應形成自主知識產權，申請發明專利 3 件以上；
- (7) 具體驗收的技術指標和經濟指標按標書評審標準和合同指標考核。

項目實施期限

實施期限為 2 年。

(ii) 小尺寸 AMOLED 技術開發及產業化

背景

有源驅動有機發光二極管(AMOLED)，具有成本低、全固態、主動發光、亮度高、對比度高、視角寬、響應速度快、超薄、驅動電壓低、功耗低、工作溫度範圍寬等特點，具有廣泛的應用前景，市場潛力巨大。與國外相比，內地 AMOLED 發展相對滯後，目前還沒有一家企業能夠進行 AMOLED 的量產。廣東省已將 AMOLED 列為戰略性新興產業之一，急需突破面向產業化的關鍵技術，實現量產轉化。

目標與內容

目標：通過項目實施，進行 AMOLED 關鍵技術（TFT 背板技術、有機薄膜製備技術、封裝技術、驅動技術等）的研發，實現 2.5 吋以上顯示模組批量生產。

內容：TFT 基板和顯示單元設計技術；TFT 薄膜製備和圖形化技術；有機薄膜製備技術；顯示屏集成技術；封裝技術；驅動電路技術；模組集成技術。工藝技術、材料、器件及中小批量產品的生產及驗證。

主要驗收指標

1、開發至少一款具有自主知識產權的 2.5 吋以上的 AMOLED 模組並實現 2 萬片以上量產；

2、主要技術指標：

屏幕尺寸	≥2.5 吋
像素結構	≥320 (RGB) ×480
亮度	≥300cd/m ²
對比度	≥30000:1

色域 NTSC	≥90%
色彩數	≥16M
壽命	≥20000 小時

3、項目成果應形成自主知識產權，申請專利 20 件以上；

項目實施期限

實施期限為 2 年。

(iii) 智能工業機器人關鍵技術及裝備

背景

近年來，隨著內地國民經濟的持續高速發展，勞動力成本的上升和管理成本的提高，迫切需要提升製造業的自動化水平，工業機器人正逐步成為一個有影響力的產業。

工業機器人是光、機、電技術的集成裝備，促進內地的工業機器人機械本體技術、控制技術、信息處理技術等關鍵技術的突破，實現工業機器人整機量產和規模應用，將促進國產工業機器人產業的技術進步，提高廣東省製造業總體水準。

目標與內容

目標：以製造業的機器人規模應用為總體目標，開發出具有自主知識產權的系列化智能工業機器人產品，形成年產 300 台工業機器人生產能力，實現 2-3 條工業機器人應用生產線示範工程，促進工業機器人產品在廣東省製造業領域的應用。

內容：

- 1、工業機器人核心技術：機器人本體結構優化和模組化設計技術；基於嵌入式的機器人控制技術；智慧識別與控制技術。
- 2、工業機器人關鍵功能部件：形成工業機器人專用控制器硬體平臺、機器人伺服單元、工業機器人機械本體等關鍵模組化部件。
- 3、工業機器人整機與成套生產線應用示範工程。

主要驗收指標

- 1、具有自主知識產權的工業機器人智能控制系統：
控制器基於開放式控制平臺，具有智能識別與控制功能；
伺服單元採用高性能交流伺服系統和串行伺服匯總纜技術；
控制軸數：6-12，聯動軸數不少於 6 軸；
開放式結構體系，允許與第三方設備的互聯與互操作。
- 2、工業機器人整機：
6 自由度及以上的工業機器人；
重複定位精度： $\pm 0.1\text{mm}$ 。
- 3、工業機器人應用示範生產線：
初步形成年產 300 台套工業機器人生產能力；
建設 2-3 條機器人生產線應用示範工程。
- 4、核心知識產權：
申請發明專利 3 件以上，獲實用新型專利 4 件以上，註冊軟件著作權 3 項以上，形成 3 項以上的技術規範與標準，發表論文 8 篇。

項目實施期限

實施年限為 2 年。

(iv) 服務機器人關鍵技術和產業化

背景

服務機器人集計算機信息處理、人工智能、控制驅動、傳感等技術於一體。開展服務機器人關鍵技術的攻關，自主研發面向生產服務、教育、娛樂等領域的智能機器人，對促進廣東產業融合發展，建設現代產業體系，優化廣東產業結構、提高自主創新能力具有積極而深遠的意義。

目標與內容

目標：針對服務機器人感知、認知和動作等三要素中的多項共性技術開展研究，形成具有自主知識產權的服務機器人產品，並在生產服務、教育和娛樂等領域進行示範應用，打造廣東省服務機器人領域的國際產業集聚帶。

內容：開展自主導航、智能識別、多軸控制等服務機器人共性技術研究，形成服務機器人核心技術的發明專利群，在生產服務、教育和娛樂等服務機器人裝備領域取得突破，並實現產業化示範應用。

主要驗收指標

- 1、在生產服務領域，形成具有內地先進技術水準的 AGV 整車產品，具備優化車輛管理、生產組織可重構等功能，支援磁帶導航、激光導航、RFID 複合導航等方式，並在自動搬運或堆垛等工業環境中實現示範應用。
- 2、在教育和娛樂服務領域，形成具有核心技術自主知識產權的機器人產品，具備人臉、手勢、語音等多種智能識別功能，實現多自由度動作控制和支持遠程通訊，並實現示範應用。

- 3、申請發明專利 3 件以上，形成具備兩種以上服務功能的機器人並實現批量生產。

實施期限

實施期限為 2 年。

(v) 空調換熱器關鍵技術及製造裝備研發

背景

隨著內地經濟的發展、人民生活水平的提高，空調應用日益普及，用電總量的比例在不斷上升，空調節能意義巨大。換熱器作為影響空調熱效能轉換的關鍵部件，其升級換代、相關製造工藝及其裝備的關鍵技術研發對節能環保具有重要意義。

目標與內容

目標：本項目將針對廣東省空調產業對節能環保型換熱器的需求，研究新型換熱器的新工藝、新材料，研發新型換熱器大規模製造的關鍵製造裝備，形成高效、節能、環保的新型流換熱器及其自動化生產線。

內容：

- 1、研究開發新型高效換熱器的新結構、新工藝和新材料等關鍵技術，並適合大規模批量生產。
- 2、研究開發新型高效換熱器的關鍵製造工藝及裝備，研製出全自動化生產線，實現新型換熱器製造裝備的國產化。

主要驗收指標

- 1、研製的新型高效換熱器達到國內先進水平，換熱器性能明顯提高，空調整機能耗降低 5% 以上；
- 2、研發新型換熱器的製造工藝及技術，適應多品種、系列化的產品生產要求，開發出全自動生產線及成套裝備；
- 3、申請發明專利 2 件，形成 2 項技術規範與標準。

項目實施期限

實施期限為 2 年。

(vi) 輕質複合材料及結構在交通運輸行業的產業化應用

背景

汽車運輸行業迫切需要高效能量吸收、高效減振降噪、高效散熱的輕質高性能複合材料，同時還要求材料兼具環保無污染、價格相對低廉、易加工、能耗低等特點。輕質複合材料具有傳統材料所不具備的多功能集成特性，如高比強、高比剛度、高強韌、高能量吸收等優良機械性能，以及高效吸聲降噪、強化傳質傳熱、阻燃防爆、過濾分離等特殊性質，兼具功能和結構雙重作用，是性能優異的多功能工程材料。輕質複合材料在汽車運輸業中的廣泛應用，可節能減排,有效減少環境污染。

內地輕質複合材料與結構的研究和製備水平基本與世界先進水平同步，在個別領域甚至有所超越。輕質複合材料與結構在汽車運輸行業的產業化應用，充分發揮其減重、減振、散熱、降噪、阻燃、防爆等性能，對促進廣東相關工業企業的技术創新水準的進步、提高其產品的核心競爭力具有重要的科學意義和工程價值。

目標與內容

目標：針對汽車運輸行業用輕質複合材料與結構開展研究，開發面向汽車運輸行業、降低能耗的兼具功能與結構特點的材料設計與應用的關鍵技術，以車輛關鍵零部件為目標產品，在不大幅提高成本的前提下，實現減重、減振、防爆、阻燃等多樣化功能，同時保證機械性能良好、加工工藝相對簡單，易於產業化推廣應用。通過本項目的示範化應用，為輕質複合材料與結構在交通運載工具（如罐車、消防車、民用轎車等）及高速精密機械方面的大規模產業化應用起到引領和帶動作用。

內容：

- 1、通過車輛關鍵零部件結構的設計，實現大規模減重；實現減振、降噪、防爆、阻燃等功能；同時保證零部件的力學性能、機械性能、可加工性能良好；
- 2、優化輕質關鍵部件的製備工藝，通過激光焊接、膠結、渦流無損檢測等工藝技術來提高產品的成品率，降低工藝中的損耗，減少輕質結構製造過程的缺陷，並保證產品品質的穩定性；
- 3、根據不同的功能化應用目的，優化設計方案，開發出具有自主知識產權的輕質複合材料與結構新型部件的構型形式及數據庫儲備；
- 4、完成輕質複合材料與結構在汽車運輸行業產業化應用的技術集成；形成針對不同功能化目的的設計、製造、質重控制的工藝和技術標準，最終實現車輛關鍵零部件的批量化生產能力。

驗收指標

- 1、研究 1-2 項輕質複合材料與結構的減重方案和特定功能的實現方案；實現汽車關鍵零部件的減重不低於 20%，應用於實現降噪功能輕質材料與結構零件的降噪效果不低於 5 分貝；特殊功能的實現效

- 果明顯，同時保證新型零部件的基本力學性能、機械性能不低於現有材料及結構；
- 2、核心技術專利 2 項以上；
 - 3、形成輕質複合材料與結構應用於汽車關鍵零部件的示範生產線，形成輕質複合材料與結構應用於汽車關鍵零部件的批量生產能力。

項目實施期限

實施期限為 2 年。

(b) 物聯網關鍵技術的研究和應用

(i) 跨境水質監測

背景

水資源在粵港澳地區是社會經濟發展的關鍵和制約因素之一。水資源管理與水環境安全監測水平的提高，對於粵港澳地區未來社會經濟的可持續發展意義重大。建立衛星遙感、航空遙感、水面在線監測和水面常規監測一體化的粵港澳水環境監測體系和應用服務系統，對粵港澳三地及附近海域的水質水量和重大突發環境事件實施有效監測，為粵港澳的提供重要的水環境信息支持，提高粵港澳三地的水安全水平。

目標與內容

建立基於星-空-地傳感器網路的粵港澳區域水資源綜合監測體系，實現粵港澳三地水質水量的遙感監測、水面在線監測和常規監測數據的融合和集成，建設基於物聯網技術的水環境監測系統，為應用部門提供及時和準確的水環境信息服務。

重點支持：粵港澳三地複雜地形和大氣條件下的內陸水體和近海水質、水量及影響因素的遙感監測技術；粵港澳水資源水質、水量在綫監測網路以及監測數據的實時處理、分析統計與可視化技術；水環境衛星、航空遙感，水面在綫和常規監測數據的融合和集成技術及其在粵港澳內陸河流、湖泊和水庫，以及近岸海洋環境中的應用；粵港澳水環境數據庫與模型庫；基於物聯網技術的粵港澳水環境多源監測和動態數據發佈系統。

主要驗收指標

- 1、以粵港澳的主要河段、湖泊、大中型水庫以及近岸海洋的水質、水量為對象進行遙感監測和在綫監測，對監測數據進行實時、動態分析和視覺化，並提供水質、水量的預警功能；
- 2、實現遙感監測、在綫監測與常規監測三個數據來源的信息融合與同化，展示粵港澳水資源水質、水量的時空變化規律；
- 3、實現粵港澳水環境的多源監測物聯網系統，實現監測數據的綜合處理和網路發佈；
- 4、項目的關鍵技術和系統的整體性能要體現創新性和先進性，對促進粵港澳水資源的保護和合理利用具有積極作用；
- 5、項目必須完成科技成果鑒定，其產品的主要技術性能指標應達到國際先進水平。

項目實施期限

實施期限為 2 年。

(ii) 大規模無線傳感器網絡測試關鍵技術研究及應用

背景

無線傳感器網絡作為物聯網應用中的核心技術之一，是當前信息技術領域最引人關注的熱點，隨著國際、國家標準制定、產業應用等工作的快速推進，大規模無線傳感器網絡應用需求十分迫切，研究大規模無線傳感器網絡綜合測試關鍵技術，建立綜合測試與驗證評估平臺，為行業應用示範系統的大規模推廣和物聯網平臺建設提供綜合測試、驗證環境，促進物聯網產業的進一步發展。

目標與內容

結合傳感器網絡測試的共性需求和典型應用特徵，研究大規模無線傳感器網系統驗證、性能測量分析、故障診斷等關鍵技術，建立支撐大規模傳感器網絡應用的綜合測試與驗證評估系統平臺，為物聯網大規模應用推廣提供重要基礎支撐。

主要驗收指標

- 1、能支援不少於 100 個無線傳感器網路節點的同時監控；圖形化展示網路通信拓撲結構，提供諸如數據信息、接收發送數據量等節點通信信息和狀態信息；
- 2、建立支持低功耗傳感器和中高速傳感器網路的系統、設備節點綜合測試評估平臺；建立支持傳感器網絡和移動網絡結合的綜合測試評估平臺；
- 3、申請發明專利 3 項或以上(其中至少 2 項發明專利進入實質性審查)

項目實施期限

實施期限為 2 年。

(iii) 食品安全溯源系統智慧化研究及應用

背景

近幾年，食品安全問題十分突出，這不僅給社會帶來巨大的災難和經濟損失，也使得食品安全問題成為全球關注的焦點問題之一。加強食品安全的監督管理工作，儘快解決食品安全中存在的問題，已成為當前一項十分緊迫的任務。目前，針對食品安全溯源系統智能化展開研究，可以進一步確保食品的生產、加工、流通等各環節信息及數據集成，徹底實現食品的“源頭”追蹤，從而可以大大提高產品的質量管理能力、物流管理能力以及國際競爭力，同時也有利於規範和淨化市場秩序。

目標與內容

重點支持物聯網技術的食品溯源系統智能化的關鍵技術研究，建立食品生產、加工、運輸、儲存到銷售過程的全生命週期追溯服務平臺和示範應用。建成過程管理、食品安全溯源智慧化系統，打造產品的整體監控系統，加強對食品安全、流通、消費的全程監控。

主要驗收指標

- 1、項目支持物聯網技術的數據採集、識別分析、確認分發集成等；
- 2、搭建 1-2 個典型應用示範平臺；
- 3、項目的關鍵技術和產品的整體性能要體現創新性和先進性，對提升行業技術水平和促進產業升級具有積極作用；
- 4、項目必須完成科技成果鑒定，其產品的主要技術性能指標應達到內地先進水平；

- 5、核心技術擁有自主知識產權，申請 3 項以上國家專利（其中至少 2 項發明專利進入實質性審查）；

項目實施期限

實施期限為 2 年。

(iv) 基於物聯網的醫療監測關鍵技術研究及應用

背景

人口的老齡化及慢性疾病病人數量的持續增長，給社會醫療服務帶來了巨大的壓力；除此之外，社會普通人群也需要及時的預防性健康監測。因此，普通大眾迫切需要一種自我健康檢測技術和平臺，通過對自我進行健康監護，提高自身的健康意識和健康狀況。通過對基於物聯網的健康監測技術展開研究，可以逐步滿足粵港兩地人群遠程關愛、監控、救援等方面的要求。同時，基於物聯網的遠程急救救助系統實現了給用戶提供實時醫療檢測和緊急呼救的服務，解決社會中“老有所管”等的民生問題，社會意義顯著。這對於提高醫療監測服務水平，實施突發事件醫療保障和特殊環境醫療救助具有重要意義。

目標與內容

研究支持物聯網節點的低耗能、信息安全以及高效的計算平臺等關鍵技術；研究基於慢性病的健康數據分析處理模型；研發健康管理服務與運行工具；研究健康信息終端可視化技術和虛擬化技術；開發整合兩地醫療資源的遠程健康監護、遠程急救及遠程診療等服務平臺和示範應用。

主要驗收指標

- 1、具有完整軟件開發平臺和信息安全機制；
- 2、個人健康信息存儲和服務平臺，可有效收集管理個人健康信息；
- 3、信息數據傳輸應符合國際藍牙標準，並具有及時性與安全性；
- 4、項目的關鍵技術和產品的整體性能要體現創新性和先進性，對提升行業技術水準和促進產業升級具有積極作用；
- 5、項目必須完成科技成果鑒定，其產品的主要技術性能指標應達到內地先進水準；
- 6、核心技術擁有自主知識產權，申請 3 項以上國家專利（其中至少 2 項發明專利進入實質性審查）；

項目實施期限

實施期限為 2 年。

(v) 基於物聯網的專業物流關鍵共性技術研究與產業化

背景

廣東省是製造業大省，在物流行業信息化水準普遍偏低的情況下，面臨著“業務分佈散亂、缺乏對車輛和物品的實時感知、運輸及倉儲效率低”等不足，造成物流成本高及管理混亂。本項目充分利用物聯網的全面感知、可靠傳輸及智慧處理等技術，研發面向專業物流的關鍵終端設備和系統，提高專業物流的信息化水準，促進發展物聯網相關設備的產業化發展，提升廣東產品製造的競爭力。

目標與內容

目標：通過項目實施，利用物聯網技術突破專業物流發展的技術瓶頸，研究其關鍵共性技術並研發相關關鍵設備，推動廣東省專業物流行業的升級改造，提升專業物流企業的信息化水平、提高物流服務效率、降低物流成本。

內容：（1）研發面向專業物流的關鍵終端設備，對運輸車輛和運輸貨物實現信息檢測和管理跟蹤；（2）組建倉儲及配送業務管理系統；（3）基於物聯網技術組建倉儲和運輸的業務網路，並在典型專業物流企業應用示範。

主要驗收指標

1、車聯網及車載無線自組網的技術指標

- （1）提供與智慧監測終端標準 RS232 接口
- （2）集成車輛 OBD 數據採集模組
- （3）提供與胎壓、載荷檢測模組標準接口
- （4）提供與其它車輛狀態檢測模組的標準接口
- （5）集成標準商用 GPS/GPRS 模組，符合 AQ3003 標準
- （6）GPS 衛星定位精度：小於 15m，GPRS:基於 GSM02.60 V8.1.0
3GPP TS 43.064 v5.0.0，GPRS 傳輸速率 40K 字節/秒
- （7）支援數據上行和下行的雙向通信，提供與後臺信息系統的
GPRS/GSM 等多制式通信方式
- （8）存儲容量 $\geq 8\text{GB}$ ，支援 ≥ 7 天感知信息存儲；
- （9）支援 100 個節點以上的網路規模
- （10）支援網路自配置、自管理、自維護
- （11）支援遠程/離線系統更新功能

2、基於雲計算和地理信息系統的倉儲管理系統指標

- (1) 支援物理 CPU 數目達 1000 顆以上
- (2) 支援存儲容量 PB (10³T 字節) 級以上
- (3) 單應用支援併發用戶 1000 個以上
- (4) 支持所有工業 x86 服務器虛擬化，包括國產服務器龍芯、曙光
- (5) 支援國產操作系統、數據庫等國產基礎軟件
- (6) 支持分割虛擬化和聚合虛擬化
- (7) 支援主流的 Linux 與 Windows 作業系統的虛擬化
- (8) 支援 NFS、iSISC、FC 存儲協議
- (9) 支持 VLAN
- (10) 支持 P2V、V2V
- (11) 支持虛擬機實時遷移
- (12) 支援虛擬機高可用
- (13) 支援 Scale-Out 方式擴展集群文件系統

3、項目研究的關鍵技術和產品的整體性能要體現創新性和先進性，對提升行業技術水平和促進產業發展具有積極作用；

4、項目必須完成省級以上科技成果鑒定，其產品的主要技術指標應達到內地先進水平；

5、形成基於物聯網的具有自主知識產權的專業物流的地方標準草案；

6、研發的系統必須得到實際應用，在 2 家以上年產值超億元人民幣的專業物流企業應用示範，為企業節約物流成本 10~20%，形成良好的社會經濟效益；

7、具體技術經濟考核指標按投標書內容和合同指標考核

項目實施期限

實施期限 2 年。