

**For discussion
on 21 March 2023**

**Legislative Council
Panel on Commerce, Industry, Innovation and Technology
“Research, Academic and Industry Sectors One-plus Scheme”**

PURPOSE

The Chief Executive announced in the 2022 Policy Address to launch a \$10 billion “Research, Academic and Industry Sectors One-plus Scheme” (RAISe+ Scheme). This paper aims to brief Members on the Scheme and the proposed implementation arrangements.

JUSTIFICATIONS

2. To realise the vision of developing Hong Kong into an international innovation and technology (I&T) centre, the Government promulgated the Hong Kong Innovation and Technology Development Blueprint in December 2022, setting out strategies under four broad development directions, including (a) enhancing the I&T ecosystem and promoting “new industrialisation” in Hong Kong; (b) enlarging the I&T talent pool to create strong impetus for growth; (c) promoting digital economy development and developing Hong Kong into a smart city; and (d) proactively integrating into the overall development of the country and consolidating our role as a bridge connecting the Mainland and the world.

3. On the enhancement of the I&T ecosystem and promoting “new industrialisation” in Hong Kong, we have to develop a comprehensive I&T ecological chain that encompasses the upstream, midstream and downstream sectors and create a vibrant I&T ecosystem, so as to maximise the benefits brought by I&T to the community. Along the chain, transformation and commercialisation of upstream research and development (R&D) outcomes should take place in the midstream. This will stimulate industry development in the downstream, and in turn generate R&D demands and resources for supporting development in the upstream and midstream. Thus, a healthy cycle will be created with various complementary sectors.

4. With our robust R&D capability and the ability to make breakthroughs out of the blue, Hong Kong enjoys clear advantages in the upstream sector. Local universities currently possess an array of R&D outcomes of core technologies/deep technology which have good potential for commercialisation. However, it would be difficult for them, being traditional academic institutions, to put in substantial resources to carry out commercialisation. Under the management system of universities, there have been constraints in relation to intellectual property (IP) matters and staff's engagement in external industry-based I&T activities. Besides, deep technology generally takes a longer time to transform and universities research teams/start-ups often lack the capital in the stage of carrying out applied R&D to creating product prototypes, thus the potential to transform the R&D outcomes cannot be fully unleashed. At the same time, there is a lack of sufficient incentive for the business sector to embark on early stage projects of which the payback periods would be very long and the investment required for transforming R&D outcomes would be substantial.

5. In order to unleash the potential of local universities in transforming R&D outcomes, we consider it necessary for the Government, universities and R&D institutes to organically integrate with the market to achieve efficient collaboration among the Government, industry, academia and research sectors. With this in mind, we propose launching a new funding scheme to accelerate the “from 1 to N” transformation of R&D outcomes.

THE RAISe+ SCHEME

6. We propose launching a \$10 billion RAISe+ Scheme under the Innovation and Technology Fund (ITF), which will be implemented under the following broad directions:

- (a) to encourage universities to transform excellent original breakthrough R&D outcomes which have reached a certain “Technology Readiness Level” to products or services for entry into the commercialisation stage, so as to facilitate the commercialisation of R&D outcomes. The funding will not be limited to specific technology areas, and no upper limit on the number of applications from individual universities will be set either;
- (b) to enable the industry, universities and R&D sectors to consolidate their efforts through this Scheme, encourage the industry sector to participate and share its business experience, and vitalize the universities' enthusiasm and initiative in the transformation of R&D outcomes; and

- (c) to keep the application and funding approval mechanisms as simple as possible and to allow flexibility, so as to enable R&D teams being supported to kick start the transformation of R&D outcomes as early as possible.

7. Starting from 2023-24, the proposed Scheme will fund, on a matching basis, at least 100 research teams from universities which have good potential to become successful start-ups to complete their projects in two stages within around five years¹:

- (a) the first stage concerns the transformation and realisation of R&D outcomes within around three years²; and
- (b) the second stage concerns the initiation of the commercialisation of R&D outcomes³ within the remaining time frame of the project.

Depending on the maturity of the transformation of its R&D outcomes, a university team may join the Scheme starting from either the first or the second stage. Teams which join the Scheme from the second stage shall complete their projects within three years⁴.

Eligibility

8. All applicant teams shall fulfill the following conditions:

- (a) come from six designated universities⁵;
- (b) with excellent original breakthrough basic R&D outcomes and the potential to become successful I&T start-ups;

¹ As the time required for the transformation of R&D outcomes into products or services for different technology areas may vary, or some projects may have a higher level of technology readiness, we will handle individual applications flexibly.

² It refers to the completion of applied R&D work and production of prototype (if required).

³ It refers to the launch of products/services in the market.

⁴ Please refer to note (1).

⁵ They are City University of Hong Kong, Hong Kong Baptist University, The Chinese University of Hong Kong, The Hong Kong Polytechnic University, The Hong Kong University of Science and Technology, and The University of Hong Kong. These universities have more students studying science, technology, engineering and mathematics (STEM) and professors with relevant research qualifications. At the same time, their technology transfer offices are more experienced and have established better networks in supporting the development of technology start-ups (such as legal, accounting, marketing, financing, corporate governance, etc., that need to be paid attention to in running a business).

- (c) have to formulate clear business plans for transforming their R&D outcomes and moving towards the commercialisation stage within five years; and
- (d) able to attract a certain level of capital investment and/or in-kind support from the industry and the respective universities.

9. Applicant team should be a university research team or a start-up company established by it⁶. The relevant university(ies) has/have to confirm that the basic R&D outcome to be used in the project originates from it/them and the core members of the applicant team are related to it/them (e.g. its/their staff, alumni and students). There is no limit on the number of teams recommended by each university.

Submission of Application

10. An applicant team has to submit application, which should comprise milestones of transforming and realising of R&D outcomes, business plan for carrying out commercialisation, budget, detailed breakdown of university/industry contribution, the support to be provided by the relevant university(ies), and proposed performance indicators and etc., to the Innovation and Technology Commission (ITC) via the respective university(ies).

Funding Amount

11. The funding amounts to be approved to individual applications would vary, subject to such factors as the stage in the R&D outcome transformation process where a project is in and its technology area. We propose that the funding amount of ITF for each project approved under the Scheme should range from a minimum of \$20 million to a maximum of \$100 million⁷, so as to provide sufficient support to the transformation of R&D outcomes in deep technology. In order to encourage collaboration amongst the industry, academic and research sectors, our funding will be provided on a matching basis⁸.

⁶ If the applicant team has already established a company in accordance with the Companies Ordinance, it should have been registered for not more than 7 years as of the deadline of the relevant application exercise. If the applicant team has not yet established a company at the time of application and the related application is supported for approval by the expert committee, the team should establish a company prior to project commencement.

⁷ Our proposed upper limit of funding amount to be provided under the first stage and the second stage of the Scheme should be \$60 million each, with a ceiling of \$100 million for a project covering both stages.

⁸ As the Government will provide substantial funding under the Scheme and the expenditures of the projects are not limited to R&D expenses, industry sponsorship/investment from local enterprises will not be eligible for the Research and Development Cash Rebate Scheme and the project will not be eligible for the Research Talent Hub.

Matching Ratio

The First Stage

12. We understand that university teams may encounter difficulties in attracting sufficient industry contribution as their R&D outcomes are of higher uncertainty and they lack experience. We therefore propose that in the first stage the Government should provide funding to university teams on a matching ratio of up to 2 (Government) : 1 (industry and university).

13. To allow a certain degree of flexibility, we propose accepting in-kind support, such as essential R&D equipment, as part⁹ of the contribution from the industry and university in the first stage, while the remaining portion from the industry and university must be capital investment¹⁰. The Government will provide corresponding matching fund in proportion to the total amount of in-kind and capital support from the industry and university.

The Second Stage

14. As university teams under the second stage should be more mature, and it is envisaged that their products/services can be launched in the market shortly, they should have a higher chance of securing investment from the industry and hence the proposed matching ratio under this stage is 1 (Government) : 1 (industry and university) based on the amount of fund invested by the industry. No matching fund will be provided for in-kind support at this stage.

Funding Scope

15. The proposed funding scope includes the manpower, instruments and equipment (procurement or rental) and other related expenses (e.g. product testing fee and patent registration fee) incurred by the university team for the R&D work to transform R&D outcomes/the production of prototypes/the manufacture of products; and the operation expenditures of the company set up by the team, etc. As the expertise of team members may mainly concern R&D, we propose to also allow the teams to employ persons with business experience to assist in the commercialisation process, including market analysis, marketing and publicity activities given that the Scheme aims to promote realisation of R&D outcomes.

⁹ Initially, we propose that it shall not exceed 50% of the total contribution from the industry and university in the first stage.

¹⁰ The contribution from the industry must be a non-repayable cash contribution or non-redeemable investment to ensure that the contribution is not a potential debt for the R&D project, thereby protecting the interest of the university team.

Teaching and IP Benefit Sharing Arrangements

16. Pursuant to the requirements of the University Grants Committee (UGC) on the usage of UGC Funds by institutions, if an employee does not work full-time for the institution, the UGC Funds have to be deducted proportionally. Therefore, regarding manpower expenditure, we will allow universities to make use of the fund under the Scheme to offset the deducted UGC Funds arising from the participation of their employees in the project under this Scheme so as to ensure that team members do not need to forfeit part of their salary; or to employ additional staff to take up the teaching duties left behind by staff participating in the Scheme who could then devote more time to focus on the transformation and commercialisation of R&D outcomes. Universities may also choose to bear the above expenses and regard such commitment as in-kind contribution to the project.

17. Separately, as university teams/early stage start-ups have limited cash flow, universities may authorise the teams to use or let them acquire the IP (derived from the R&D work of the team) required for the projects by charging licensing fee or accepting equity. To provide greater incentive for university teams to commercialise R&D outcomes with transformation potential, and create more opportunities for start-ups to develop and raise funds in the private market in future, we propose setting some requirements on the distribution of IP benefits (derived from the R&D work of the team) that the universities and teams may receive.

Vetting of Projects

18. Applications recommended by a relevant university will first be subject to ITC's preliminary assessment, and then be submitted to an expert committee comprising members from different sectors including academic and relevant industries for assessment. Supported applications will eventually be approved by the Commissioner for Innovation and Technology. Given that the commercialised products may not be launched in Hong Kong only but also introduced to the markets in the Greater Bay Area, the Mainland and even overseas, members of the expert committee may also come from the Mainland or overseas. Moreover, since the product ideas and business plans in the application forms may contain commercially sensitive information, we will request members of the expert committee to declare interests and adhere to the principle of confidentiality.

19. As regards the assessment criteria, we propose including the following five items:

- (a) innovation and technology component;
- (b) commercial viability of project outcomes;
- (c) technical and management capability of the team;
- (d) relevance of the project with government policies or how far it is in overall interest of the community; and
- (e) financial considerations of the project (such as the reasonableness and financial viability of the estimated expenditure and the level of industry sponsorship).

We will determine the weighting of the various criteria in the first and second stages respectively, taking into account the different emphasis of the two stages.

Execution and Monitoring of the Project

20. As the applicant teams come from universities, they will be more familiar with the procedures and personnel arrangements of their respective universities. Besides, universities have been providing different kinds of assistance to the teams in their run up to start-ups. In order to allow more flexibility for the teams and make better use of the existing support/resources of universities, it is suggested that some of the administration processes of the Scheme could be handled by the universities.

21. As mentioned above, applications from university teams have to be first confirmed and recommended by the universities, and then submitted to ITC for preliminary assessment before being assessed by the expert committee. If an application for joining the first stage is approved, in order to enable the project team to kick-start its project, we will disburse part of the approved funding by making reference to the projected cash flow requirement of the project for the first year submitted by the team as advance payment. For team entering the second stage direct, ITC will provide matching fund to them upon receipt of proof(s) showing the receipt of contribution/investment from the industry.

22. Funded teams are required to submit through their universities annual progress reports, annual audited accounts and other required supporting documents (e.g. proof showing receipt of funding) to ITC. The universities are required to conduct an initial assessment and confirm that the funded team has accomplished the milestones and met the performance indicators. ITC will monitor the progress of projects, and, having regard to the team's progress and

cash flow requirement, as well as how far the contribution/investment from the university and industry has been made, disburse the remaining fund to university for onward distribution to the team. As the funding is provided on a matching basis, if the actual amount of university/industry contribution is less than that committed in the application, the funding amount will be reduced accordingly and the project team has to return any disbursed fund in excess. If the progress of a project is unsatisfactory or the funding guidelines or the project agreement were/was breached, ITC reserves the right to cease to fund or even terminate the project, and require the funded team to return any disbursed fund.

23. Project teams shall execute the projects in strict accordance with the project agreements and approved project proposals. That said, they may submit change requests if unforeseeable circumstances arise, and revise the budget within the ceiling of the approved budget if necessary. Before proceeding to the second stage, project teams are required to supplement their business plans based on the latest technological development and market conditions. The project teams are also required to submit a final report and final audited accounts via their universities upon project completion. In order to allow project teams to focus on the work related to the transformation and commercialisation of R&D outcomes, we will simplify the format of the reports as far as possible. Moreover, universities may enter into other agreements with the teams to specify the rights and responsibilities of both parties and the financial arrangements.

EXPECTED BENEFITS

24. The setting up of the RAISe+ Scheme will encourage more private companies to participate or invest in R&D projects and technopreneur activities, realise more R&D outcomes from university teams, provide long-term and comprehensive support for applied R&D activities in Hong Kong, and further promote the collaboration among the Government, industry, academic and research sectors and encourage universities, private companies and R&D communities in Hong Kong, the Mainland and overseas to conduct more R&D collaborations and exchanges, further enhancing the I&T ecosystem in Hong Kong, and therefore supporting the development of Hong Kong into an international I&T centre.

FINANCIAL IMPLICATIONS

25. Subject to Members' support, we will seek the approval of the Finance Committee (FC) of the Legislative Council to create a new subhead of \$10 billion under ITF, and to inject funds in tranches for implementing the RAISe+ Scheme. The first tranche of \$5 billion will be injected into ITF in 2023-24, while the time

to inject the remaining \$5 billion depends on the prevailing expenditure of the Scheme. The cash flow requirement for each year will be subject to the number of applications received and approved, as well as the amount of funds that need to be disbursed.

26. ITC will set up a secretariat to handle the administrative work related to the Scheme, for instance, carrying out preliminary assessment of the applications, arranging expert committee meetings, disbursing funds, monitoring the progress of approved projects, reviewing the operation of the Scheme as well as making recommendations to improve the modus operandi of the Scheme. ITC has earmarked funding in the 2023-24 Budget to meet the expenditures pertaining to the setting up of the secretariat.

IMPLEMENTATION TIMETABLE

27. We intend to seek funding approval for the RAISe+ Scheme from the FC within the second quarter of this year for its launch in 2023. Upon completion of assessment by the expert committee, we anticipate that the application results can be announced in early 2024. Subject to the response and funding position, we envisage that two to three rounds of applications may be invited in the first two years after the Scheme is launched.

ADVICE SOUGHT

28. Members are invited to support the Government to seek the approval of FC to create a new subhead of \$10 billion for launching the RAISe+ Scheme as proposed in this paper. We also welcome Members' views on the implementation details of the proposed Scheme. ITC will continue to closely liaise with stakeholders and refine the modus operandi of the Scheme.

Innovation, Technology and Industry Bureau
Innovation and Technology Commission
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