

For discussion on
20 December 2016

Legislative Council Panel on Commerce and Industry

Technology Start-up Support Scheme for Universities

PURPOSE

The 2016-17 Budget announced that the Government would continue the Technology Start-up Support Scheme for Universities (“TSSSU”) to assist technology start-ups established by university teams¹ in commercialising their research and development (“R&D”) results. This paper seeks Members’ support for the proposal.

BACKGROUND

2. Universities are a major nurturing ground for innovation, discoveries and technology advancement. While the research process will train young talents in the area of science, technology, engineering and mathematics (STEM), providing new blood for innovation and technology development, it is equally important that these discoveries and innovative ideas could be further developed into new products or services, thereby creating economic value. We therefore consider it necessary to proactively help and promote the development of university start-ups.

3. At the Panel meeting on 18 March 2014, Members supported the setting up of TSSSU² under the Innovation and Technology Fund, initially for three years from 2014-15, to provide funding to universities to support their teams in starting technology businesses and commercialising their R&D results. An annual funding of up to \$4 million is provided to each university on a reimbursement basis. Each start-up may receive up to \$1.2 million each year for no more than three years. Implementation details including the amount and scope of funding, eligibility, application and assessment arrangements, as well

¹ The teams should be associated with the six local universities, namely The University of Hong Kong, The Chinese University of Hong Kong, City University of Hong Kong, The Hong Kong University of Science and Technology, Hong Kong Baptist University and The Hong Kong Polytechnic University.

² The meeting of the Legislative Council Panel on Commerce and Industry on 18 March 2014 discussed LC Paper No. CB(1)1072/13-14(07) “New Initiative on Promotion of Innovation and Technology” and supported the establishment of the Technopreneurship Grant Scheme. The scheme was renamed as TSSSU when it was launched in September 2014.

as reimbursement and monitoring mechanism are set out at **Annex A**. TSSSU was introduced in 2014 and the initial funding period will expire on 31 March 2017.

PROPOSAL

4. We propose to continue TSSSU for another three years from 2017-18 to 2019-20.

LATEST DEVELOPMENT

5. Since the inception of TSSSU, there were a total of 505 applications received, of which 169 were approved and about \$65.57 million was provided for 122 start-ups³. Funding received by a start-up ranged from \$0.1 million to \$3.28 million and the average funding provided to each start-up was about \$0.54 million. A breakdown of the figures are provided below –

| Financial year | No. of applications received | No. of applications approved | Amount of funding approved (\$ million) |
|----------------|------------------------------|------------------------------|---|
| 2014-15 | 100 | 36 | 19.00 |
| 2015-16 | 227 | 66 | 22.57 |
| 2016-17 | 178 | 67 | 24.00 |
| Total | 505 | 169 | 65.57 |

6. The 122 TSSSU-funded start-ups cover a wide range of technology sectors, including information and communication technologies (ICT) (48.36%), biotechnology (22.95%) and electronics (13.11%). Details are set out below –

| Technology sector | No. of start-ups | Percentage of start-ups | Amount of funding approved (\$ million) |
|-------------------|------------------|-------------------------|---|
| ICT | 59 | 48.36% | 22.53 |
| Biotechnology | 28 | 22.95% | 23.03 |
| Electronics | 16 | 13.11% | 7.00 |

³ Total number of applications approved is greater than total number of start-ups funded because 39 companies were funded for more than one financial year.

| Technology sector | No. of start-ups | Percentage of start-ups | Amount of funding approved (\$ million) |
|---|-------------------------|--------------------------------|--|
| Nanotechnology and material science | 6 | 4.92% | 6.92 |
| Advanced Manufacturing/ Process Development | 3 | 2.46% | 1.20 |
| Others (e.g. environmental protection, etc.) | 10 | 8.20% | 4.89 |
| Total | 122 | 100% | 65.57 |

MAJOR ACHIEVEMENTS

7. According to the universities, since the launch of TSSSU, there has been increasing interest amongst faculties and students in commercialising their research results and in developing new products, solutions or business models. In addition, the TSSSU funding has created strong synergy within the universities. As the operation of a business involves different knowhow, including legal, accounting, marketing, fund raising, company governance, etc., the universities have also organised more cross-faculty entrepreneurial activities (e.g. seminars and workshops on business administration, pitching skills, negotiation skills, contract management and intellectual property (“IP”) management) to enhance the capabilities of the funded start-ups and potential TSSSU applicants.

8. The universities have also stepped up their efforts to collaborate with external stakeholders, proactively reaching out to industry players, investors, public and private incubators/accelerators, as well as the local, Mainland and overseas R&D communities. For instance, the universities have encouraged their start-ups to proactively participate in pitching events, invention competitions, trade exhibitions, etc. and to facilitate eligible start-ups to participate in incubation programmes introduced by Hong Kong Science and Technology Parks Corporation (“HKSTPC”) and Hong Kong Cyberport Management Company Limited (“Cyberport”). These collaborations are essential for the further commercial development of the discoveries and bringing R&D results from the laboratory to the real world.

9. As at 31 October 2016, out of the 122 TSSSU-funded start-ups, 60 have generated IP rights from their R&D, 65 have rolled out their products/services in the market, and 48 have started to generate business revenue ranging from about \$5,000 to some \$1.2 million per year. In addition, 37 start-ups have won various local or international awards, and 54 have been successful in getting investment. The total investment received amounted to some \$115 million, with \$73 million (63%) raised from private investors.

10. On the other hand, the 122 TSSSU-funded start-ups have created around 530 jobs/training opportunities and 64% of them are technical positions. Among these 122 start-ups, 41 and 4 have been admitted to the incubation programmes of HKSTPC and Cyberport respectively.

11. The major achievements of TSSSU are set out at **Annex B**.

12. Some examples of the start-ups are highlighted below –

(a) ***Products Launched for Sale***

Example one:

An ICT start-up associated with The Polytechnic University of Hong Kong has developed for the elderly a self-service, interactive cognitive assessment system that can automatically assess the cognitive state of elderly patients through interactive games. The system has been launched on some major online application stores.

Example two:

A start-up associated with The Hong Kong University of Science and Technology has developed a series of noise remediation products and customised soundproofing panels using a new material that can absorb noise in the low frequency range at a lower cost for customers in the construction and transportation sector.

Example three:

An ICT start-up associated with the City University of Hong Kong has developed ultra-thin physical buttons that can be attached to the outer cases of mobile phones and perform a series of pre-set functions. The product has been launched on some online platforms.

(b) *Products Ready for Trial*

Example four:

A bio-medical start-up associated with The Chinese University of Hong Kong is developing a neurosurgical planning and navigation system to reduce the risks, shorten the time and improve the outcome of surgical operations. The system is now on trial use in the Prince of Wales Hospital.

(c) *Products with Potential*

Example five:

An ICT start-up associated with The University of Hong Kong which specialises in cyber intelligence and cyber security, offers solutions and consulting services to copyright owners to guard against the sale of pirated products on the Internet and detect illegal downloads of materials that infringe IPs. It has successfully raised further funding from private investors.

Example six:

A start-up associated with the Hong Kong Baptist University has developed a submicron thin film that is ultra-hard, non-fragile and resistant to scratches, and that can be applied to touch screen devices to provide excellent scratch protection. The technology won the Grand Prix International Invention Award (highest honour) at the 44th International Exhibition of Inventions Geneva in 2016 and successfully attracted investment from a venture capital company. The start-up is now valued at about \$200 million.

CONTINUED SUPPORT FOR UNIVERSITY STARTUPS

13. The achievements of TSSSU-funded start-ups within such a short period of time are encouraging. The funding has provided the initial capital and created a better ecological environment for them to grow and thrive. We therefore propose to continue TSSSU from 2017-18 onwards for another three years and provide an annual funding of up to \$4 million to each of the six local universities to support the development of the start-ups they recommend.

14. All the TSSSU-funded start-ups will continue to submit reports on the progress of their businesses and universities will also submit reports on the performance of their start-ups. In addition, we will conduct reviews of the funding arrangement regularly to ensure that the funding is disbursed properly.

ADVICE SOUGHT

15. Members are invited to support the proposal to continue the funding for TSSSU from 2017-18 to 2019-20.

Innovation and Technology Bureau
Innovation and Technology Commission
December 2016

Technology Start-up Support Scheme for Universities (TSSSU)

Implementation Details

Amount of Funding

Under TSSSU, an annual funding of up to \$4 million is provided, through the Innovation and Technology Fund, to each of the six local universities on the following basis –

- (a) no limit on the number of start-ups to be recommended by each university, subject to the annual funding ceiling of \$4 million for each university; and
- (b) each approved start-up would be funded for no more than three years¹ with an annual funding capped at \$1.2 million. If a funded start-up has made reasonable progress in its research and development (“R&D”) and/or business performance, the associated university may recommend such start-up for continued funding under TSSSU.

Eligibility

2. The applicant start-up, regardless of size, must be a company registered under the Companies Ordinance (Cap. 622) for not more than two years as of the date of the application deadline prescribed by the Innovation and Technology Commission (“ITC”). The team forming the start-up may have any mix of the students and professors of the university –

- (a) undergraduates, postgraduates or alumni; and/or
- (b) professor(s) serving as consultant(s) providing technical expertise and direction of the R&D.

3. It is up to each university to determine whether it needs to set further eligibility requirements to suit its own circumstances (e.g. whether a cap should be set on the number of years that an alumnus has graduated from the university, etc.).

¹ The three-year period should count consecutively from the first year that a start-up is approved for the TSSSU funding. For example, if a start-up was first approved for the funding in 2014-15 (Year one) and only applied for continued funding in 2016-17 (Year three), it will not be eligible for seeking further funding in 2017-18 (Year four).

4. The team forming the start-up is required to appoint a person-in-charge (“PIC”). The PIC should be associated with the respective university as stipulated in paragraph 2 above and engaged in the start-up’s business. The PIC is responsible for overseeing the operations of the start-up and liaising with the university on matters relating to the TSSSU funding. The appointed PIC cannot join other concurrently active start-up teams funded by TSSSU.

Scope of Funding

5. The TSSSU funding should be used in a reasonable, proportionate and proper manner in the following areas for achieving the stipulated purpose –

- (a) essential items for setting up and operating the start-ups (e.g. furniture and equipment, legal and accounting services, rental of necessary and suitable premises, manpower, etc.);
- (b) expenditure on R&D (e.g. manpower, equipment, other direct costs, etc.); and
- (c) promotion activities and marketing of their R&D deliverables, products or services.

6. Any expenditure or part thereof which is already funded by the Government, a Government subvented body/institution or the associated university will however not be funded under TSSSU, i.e. no double payment to the start-up is allowed for the same part of an expenditure item. ITC will not take equity in the start-ups or claim intellectual property rights arising from their businesses.

Application and Assessment Arrangements

7. Start-ups interested in TSSSU should submit their applications to their associated universities. Each university has devised its appropriate assessment and selection mechanism which should operate in a fair, open and objective manner. A selection panel, which is established by the university, comprises appropriate assessors with relevant expertise and experience, including technologists, academics, experts from the industry, professionals in related areas like accounting, financial or legal, public or private incubators, venture capitalists, etc.

8. In assessing an application, the selection panel should take into account the following aspects of the start-up –

- (a) innovation and technology content of the business;
- (b) commercial viability of the business;
- (c) capability of the start-up and its team to undertake the R&D proposed and manage the company;
- (d) social and/or community impact of the business and R&D work; and
- (e) any other criteria that the university sees fit.

Applications assessed and recommended by the selection panel of each university will be forwarded to ITC for agreement.

Reimbursement Arrangements

9. The TSSSU funding is made to the universities on a reimbursement basis after the close of each Government financial year. In this regard, the universities have to submit a certified reimbursement request for expenditure incurred in the previous financial year, together with the statement of expenditure and the auditors' report submitted by each start-up. Payment would be made to the universities after verification of the required documents and information (e.g. the expenses are within the approved scope, they are reasonable/proportionate, they were handled in a proper manner, etc.).

Monitoring and Review

10. The above reimbursement arrangements aim to safeguard that the TSSSU funding would be used in a reasonable, proportionate and proper manner. To report developments of their businesses, start-ups have to submit an annual report and progress report(s), say half-yearly report, in each financial year to the universities. The universities are also required to provide ITC with their observations and assessment of the performance of their start-ups on an annual basis. The universities are required to take appropriate actions and report to ITC on any irregularities observed in the start-ups in the first instance.

11. To ensure that the universities' implementation of TSSSU is in line with the funding requirements and arrangements, each university has to submit to ITC its operation plan on TSSSU for agreement before its annual call for applications. In the past three years, ITC has maintained close liaison with the six local universities regarding implementation of TSSSU and would adopt improvement measures where necessary.

**Technology Start-up
Support Scheme for Universities (TSSSU)**

Major Achievements made in 2014-15 to 2016-17
(as at 31 October 2016)

| Performance Indicators | 2014-15 | 2015-16 | 2016-17 (as at 31 Oct 2016) | Total |
|--|----------------------------|----------------------------|--|--|
| 1. No. of start-ups funded | 36 | 66 | 67 | 122 ¹ |
| 2. No. of start-ups that have generated intellectual property (IP) rights (Total no. of IP generated) | 18 (206) | 33 (263) | 32 (98) | 60 ² (567) |
| 3. No. of start-ups that have rolled out their products/ services in the market | 17 | 42 | 31 | 65 ³ |
| 4. No. of start-ups that have raised capital (Total amount of funding raised) | 14 (\$34.20 million) | 30 (\$55.32 million) | 21 (\$25.06 million) | 54 ⁴ (\$114.58 million) |
| 5. No. of start-ups that have received revenue (Total amount of revenue received) | 7 (\$2.19 million) | 31 (\$6.63 million) | 21 (\$4.56 million) | 48 ⁵ (\$13.38 million) |

¹ 39 start-ups were funded for more than one financial year.

² 23 start-ups have generated IP in more than one financial year from 2014-15 to 31 October 2016.

³ 25 start-ups have rolled out their products/ services in the market in more than one financial year from 2014-15 to 31 October 2016.

⁴ 11 start-ups have raised capital in more than one financial year from 2014-15 to 31 October 2016.

⁵ 11 start-ups have received revenue in more than one financial year from 2014-15 to 31 October 2016.

| Performance Indicators | 2014-15 | 2015-16 | 2016-17 (as at 31 Oct 2016) | Total |
|---|----------------|----------------|--|-----------------|
| 6. No. of start-ups being presented with local or international awards | 7 | 18 | 20 | 37 ⁶ |
| 7. Jobs/training opportunities created | 132 | 230 | 170 | 532 |
| - <i>Technical</i> | 76 | 155 | 108 | 339 |
| - <i>Non-technical</i> | 56 | 75 | 62 | 193 |
| 8. No. of start-ups admitted to incubation programmes (e.g. Hong Kong Science and Technology Parks Corporation, Hong Kong Cyberport Management Company Limited, etc.) | 3 | 30 | 13 | 52 |

⁶ Eight start-ups were presented with local or international awards in more than one financial year from 2014-15 to 31 October 2016.