ITEM FOR FINANCE COMMITTEE

INNOVATION AND TECHNOLOGY FUND HEAD 111 – INNOVATION AND TECHNOLOGY Subhead 101 Innovation and Technology (block vote)

New Subhead "Research centres/laboratories for establishment of research clusters"

HEAD 184 – TRANSFERS TO FUNDS Subhead 992 "Payment to the Innovation and Technology Fund"

CAPITAL INVESTMENT FUND

HEAD 962 - INDUSTRY

New Subhead "Equity in the Hong Kong Science and Technology Parks Corporation for supporting healthcare and artificial intelligence and robotics technologies researches and its tenants/incubatees"

New Subhead "Equity in the Hong Kong Cyberport Development Holdings Limited for supporting its tenants/incubatees and promoting the development of e-sports"

Members are invited to approve -

- (a) a supplementary provision of \$20 billion under Head 184 Transfer of Funds Subhead 992 Payment to the Innovation and Technology Fund to enable –
 - (i) the continued operation of the existing funding schemes/support programmes under the Innovation and Technology Fund and introduction of various new initiatives; and
 - (ii) the creation of a new commitment to provide financial support to establish research clusters in Hong Kong;

- (b) a commitment to inject \$10 billion as equity from the Capital Investment Fund to the Hong Kong Science and Technology Parks Corporation for providing facilities to support healthcare and artificial intelligence and robotics technologies researches, and strengthening support measures for its tenants/incubatees; and
- (c) a commitment to inject \$300 million as equity from the Capital Investment Fund to the Hong Kong Cyberport Development Holdings Limited for strengthening the support to its tenants/incubatees and promoting the development of e-sports in Hong Kong.

PROBLEM

Innovation and technology (I&T) is an economic driver in the new era. It can nurture new industries and create wealth, drive economic transformation, bring quality jobs for young people and improve people's quality of life. To spearhead as well as to provide sustained and comprehensive support for the I&T development in Hong Kong, we need to strengthen our research and technological capabilities and foster a robust I&T ecosystem through various measures and active collaboration with our flagship I&T institutions namely the Hong Kong Science and Technology Parks Corporation (HKSTPC) and the Hong Kong Cyberport Development Holdings Limited (HKCDHL).

PROPOSALS

2.

We propose that Members approve –

- (a) a total injection of \$20 billion into the Innovation and Technology Fund (ITF), including –
 - (i) \$10 billion for supporting the continued operation of the existing ITF funding schemes/support programmes and introducing various new initiatives; and
 - (ii) another \$10 billion for creating a new commitment to provide financial support to establish research clusters in Hong Kong;

/(b)

- (b) a commitment to inject \$10 billion as equity from the Capital Investment Fund (CIF) to HKSTPC for providing facilities to support healthcare and artificial intelligence (AI) and robotics technologies researches, and strengthening support measures for its tenants/incubatees; and
- (c) a commitment to inject \$300 million as equity from CIF to HKCDHL for strengthening the support to its tenants/incubatees and promoting the development of e-sports in Hong Kong.

I. INJECTION INTO THE ITF

JUSTIFICATION

3. The ITF has been the Government's main vehicle to finance projects that contribute to I&T upgrading in our manufacturing and services industries, which will be conducive to the long-term development of Hong Kong. We see a need to inject a total of \$20 billion into the ITF, made up of \$10 billion for sustaining the operation of its existing funding schemes and introducing various new initiatives; and another \$10 billion for establishing research clusters in Hong Kong.

A. To Continue Existing ITF Funding Schemes/Support Programmes and to Introduce New Initiatives

4. At present, there are 12 funding schemes under the ITF which serve to support research and development (R&D), facilitate technology adoption, nurture technology talent, support technology start-ups and promoting an I&T culture. Each has its own objectives, scope, and modus operandi. In addition, the ITF also has other support programmes, which fund, in full or in part, the operation of research centres/laboratories and university technology transfer offices to enable them to carry out more R&D work, commercialise their R&D outcome or transfer their knowledge.

5. Details of these funding schemes or support programmes are Encl. 1 summarised at Enclosure 1.

/6.

6. In general, the above funding schemes/support programmes have been operating smoothly and satisfactorily and considered effective in achieving the respective purposes of the initiatives. As evidenced by the increasing number of applications in recent years, existing funding schemes are well received by organisations in both the public and private sectors. Besides, an increasing number of ITF-funded projects, especially those undertaken by our R&D Centres, have their R&D outcomes commercialised or adopted. Hence, we see the need to sustain the operation of these schemes/programmes. The estimated financial commitment is around \$ 2.2 billion per year.

7. Apart from sustaining the continued operation of the current funding schemes/support programmes under the ITF, we also need to step up our support to facilitate more R&D work, build a more vibrant I&T ecosystem in Hong Kong and stimulate more private investment in R&D through various new initiatives. Details are set out in paragraphs 8-12 below.

Technology Talent Scheme

8. A total of \$500 million would be set aside under the ITF for a five-year pilot scheme, namely the Technology Talent Scheme, to nurture and bring together more technology talent. The pilot scheme comprises the following two programmes –

(a) Postdoctoral Hub programme –

for providing funding support to ITF recipients and incubatees/I&T tenants of the HKSTPC/Cyberport to recruit up to two postdoctoral talent for R&D work. The ITF will provide a monthly allowance of \$32,000 for each postdoctoral researcher¹ for up to 24 months. We aim to launch this programme in the third quarter of 2018; and

/(*b*)

¹ The concerned researcher must possess a doctoral degree in a science, technology, engineering and mathematics (STEM)-related discipline from either a local university or a well-recognised non-local institution i.e. those that are among the top 100 institutions in the related subjects in world university rankings such as the Quacquarelli Symonds World University Rankings, Shanghai Jiao Tong University (Academic Ranking of World Universities) and Times Higher Education World University Rankings.

(b) Re-industrialisation and Technology Training Programme (RTTP) –

for subsidising local companies on a 2:1 matching basis to train their staff in advanced technologies, especially those related to "Industry 4.0". At the moment, the Vocational Training Council (VTC) is running a New Technology Training Scheme (NTTS)². For better coordination and avoid duplication of resources, we will wind down the NTTS upon the launch of the RTTP³. VTC will instead administer the RTTP, which will be overseen by its Innovation and Technology Training Board⁴. The total cost of implementing the RTTP is estimated to be \$17.7 million⁵. We plan to launch the RTTP in the third quarter of 2018.

Mainland-Hong Kong Joint Funding Scheme (MHKJFS)

9. In 2004, we joined hands with Guangdong and launched the "Guangdong-Hong Kong Technology Co-operation Funding Scheme" (TCFS). As at end March 2018, we have supported 265 projects, involving funding of over \$863 million. In view of the increasing collaboration opportunities between Hong Kong and other provinces of the Mainland, we will collaborate with the Ministry of Science and Technology (MOST) to set up the MHKJFS to support and encourage such collaboration.

10. The funding model and modus operandi of the MHKJFS to be launched will largely follow that of the TCFS. Briefly, the Innovation and Technology Commission (ITC) and MOST will jointly invite applications once a year. We will vet the applications separately, following each party's own criteria. Only applications that are supported by both ITC and MOST will be approved. ITC and MOST will provide funding to the Hong Kong and Mainland partners respectively, and will monitor project progress according to their own requirements.

/Partnership

² Established in 1992, the NTTS funds local companies on a 1:1 matching basis to train their staff in new technologies. In 2017-18, the NTTS has funded 576 applications, involving about \$2.6 million.

³ The NTTS is funded by the investment income of the New Technology Training Fund (NTTF) held by the VTC on trust for the Government. Upon the launch of the RTTP, the NTTS will cease to receive applications and the remaining fund will be returned to the Government.

⁴ VTC has set up 25 training boards to advise on manpower trends and industry development needs. The Innovation and Technology Board is one of them. It comprises representatives from major industry and trade organisations, various industry sectors, relevant public bodies as well as Government departments.

⁵ VTC will contribute about \$6.1 million, comprising information technology (IT) system maintenance (\$1.8 million), provision of a senior project officer on a part-time basis (1.5 million) and administrative overheads (\$2.8 million), whilst the remaining \$11.6 million, covering IT system development, staff and publicity costs etc, will be borne by the ITF.

Partnership Research Programme (PRP)

11. At present, both the Innovation and Technology Support Programme (ITSP) and the University-Industry Collaboration Programme (UICP) support R&D collaborative projects. The former supports collaborative projects between local public research institutions and private companies, and the latter supports collaborative projects jointly undertaken by private companies and local universities⁶. Upon review, we plan to merge the UICP and the collaborative stream of the ITSP into a new PRP to achieve synergy and flexibility⁷. Similar to the existing ITSP, the PRP will require 50% industry sponsorship⁸ for projects. We aim to roll out this consolidated programme in early 2019.

Commercialisation of R&D results

12. Currently, the five R&D centres⁹ have to return their income generated from ITF-funded projects (e.g. through commercialisation of project outcomes) to the ITF. In order to incentivise commercialisation of R&D results of these projects, we plan to allow R&D centres to retain the income for use in strategic activities, such as technology and market analyses, infrastructure building, staff development or experimental projects etc. The arrangement is on par with that for universities or other public research institutions, and would allow flexibility for these centres to pursue more strategic and non-project-specific initiatives conducive to the development of I&T. The governing boards of the R&D centres may recommend to ITC the usage of the reserve. Submission of annual plans and audit reports for the reserve fund will also be required.

B. To Establish Research Clusters

13. We need another \$10 billion to create a new commitment under the ITF so that it can provide funding support for the setting up of two research clusters at the Hong Kong Science Park (Science Park) to capitalise on the strong research capability and international credibility of our universities in the following areas which Hong Kong enjoys clear advantage –

/(*a*)

⁶ Universities may undertake collaborative projects under the ITSP (collaborative stream) and the UICP, but would be subject to different rules such as sponsorship and project duration.

⁷ Where the funding requirements of the two programmes differ, the more flexible arrangement will be adopted. For example, the maximum project duration for ITSP and UICP are two and three years respectively. The PRP will adopt three years.

⁸ Similar to collaborative projects under the ITSP, R&D Centres may seek approval for projects with 30%-50% industry sponsorship.

⁹ The five R&D Centres include the Hong Kong Applied Science and Technology Research Institute, the Nano and Advanced Materials Institute, the Logistics and Supply Chain MultiTech R&D Centre, the Hong Kong Research Institute for Textiles and Apparel and the Automotive Parts and Accessory Systems R&D Centre.

(a) Healthcare Technologies

Universities in Hong Kong have strong research capability in healthcare technologies. The University of Hong Kong and the Chinese University of Hong Kong have set up clinical trial centres at the Queen Mary Hospital and the Prince of Wales Hospital respectively, both of which have excellent track record in conducting clinical trials and collaborating with multi-national pharmaceutical companies. Discoveries and publications of local researchers have won global recognition. The proposed research cluster for healthcare technologies will attract world-class scientific research teams to set foot in Hong Kong and collaborate with our local research teams, collectively promoting the thriving development of the life science and healthcare sectors.

(b) AI and Robotics Technologies

With the intensification of digital economy, there is a significant increase in both the amount of data and the computational power to process them. This has spurred the rapid development of AI, robotics technologies, contributing to driving business transformation and better forecasting of trends and impacts and benefitting different economic sectors through their applications. It is expected that by 2022, the service robotics market will reach US\$23.9 billion¹⁰. In terms of technologies, local universities and research institutions possess strong capabilities in AI, robotics and related fields (such as drones, advanced facial recognition systems, surgical robotic systems, etc.). Having a research cluster for AI and robotics technologies would provide strong impetus to the growth of this sector.

Financial support package for establishment of research clusters

14. We propose to make use of the ITF funding to establish two world-class research clusters focusing on the above two areas at the Science Park. We aim at attracting institutions that are among the global top echelon in healthcare or AI and robotics technologies to set up research centres/laboratories. Their global rankings¹¹, performance in respect of publication of papers and citations, number of patents in these two areas, as well as track record or concrete plans in collaborating with local universities, research institutions or industry partners will be taken into consideration.

/15.

¹⁰ Source: MarketsandMarkets, a global market research and consulting firm

¹¹ For example, the Quacquarelli Symonds World University Rankings, the Times Higher Education World University Rankings and Academic Ranking of World Universities (also known as Shanghai Ranking).

15. We plan to adopt an incremental approach and take in research centres/laboratories by phases. We intend to admit around four to five research centres/laboratories in each cluster in the first year, gradually increasing to around ten in the following few years. We believe this number is sufficient to create a synergy effect, while avoiding overstretching the resources as well as the planning and monitoring work involved. We will review the implementation of the two research clusters and global technology development etc. and consider in future whether to expand the scale of the two clusters and whether to establish new clusters.

16. We fully understand that substantial capital and operation costs may be entailed for non-profit-making institutions and universities to set up an outpost away from their home campus. We thus propose to provide financial support to these research centres/laboratories. The financial support package consists of –

- (a) *Capital Support*: for covering the capital expenditure for set-up, equipment and periodic renovation/upgrade etc. It is estimated that the relevant set up and periodic equipment upgrading/refurbishment costs are around \$800 million and \$1,200 million respectively, assuming 20 research centres/laboratories are to be set up;
- (b) Operation Support: for subsidising the recurrent operating costs such as rental, utilities, staff cost as well as other related expenses. In line with existing arrangement for local research institutions, funding will be provided to cover the costs of secondment of staff and the on-cost incurred by the parent institution for its oversight of the concerned research centre/laboratory¹². It is estimated that the relevant cost is around \$ 8,000 million; and
- (c) *Research Support*: for financing research projects undertaken by these research centres/laboratories which are to be funded under the existing/new ITF funding schemes/programmes. We will adopt a programme-based funding approach with each programme lasting four to five years, subject to annual scientific review of the research progress and future direction, etc.

/17.

¹² The ITF provides an administrative overhead of up to 15% of the R&D project funding to local research institutions.

17. When determining the exact amount of financial support for individual research centre/laboratory, we will draw reference from other research establishments with similar scale of operation and in similar fields¹³. Individual research centres/laboratories will be required to provide adequate proof to justify their cost proposals in order to ensure prudent use of public money. We envisage that the financial support package of \$10 billion should be sufficient to sustain the operation of the two research clusters for 10 to 15 years.

18. To encourage public-private partnership in I&T development, we propose to allow flexibility for the research centres/laboratories to accept donation, and/or carry out fundraising drives, contract researches and other revenue generating activities.

Financial position of the ITF

19. Over the years, the Finance Committee (FC) of the Legislative Council (LegCo) approved a total of \$10 billion for the ITF.¹⁴ The total income was \$4.6 billion (mainly investment income from the Exchange Fund). Since its establishment in 1999, the ITF has supported about 7 400 projects, on funding of some \$14 billion¹⁵. The uncommitted balance currently stands at \$1.1 billion.

20. In recent years, with the introduction of new programmes, there have been substantial increases in ITF spending. In 2013-14, we disbursed about \$0.7 billion of ITF funds. In 2017-18, this has grown to about \$1.5 billion. We expect this to further increase to some \$2.1 billion in 2018-19, and the ITF will be depleted by the end of 2018.

21. Without the proposed injection of a total of \$20 billion into the ITF, the operation of the fund cannot be sustained to support the existing funding schemes/support programmes, various new initiatives to be introduced, as well as the proposed establishment of the research clusters focusing on healthcare and AI and robotics technologies in the Science Park.

/EXPECTED

¹³ Healthcare technology researches normally entail higher set-up and operating costs due to the high cost of procuring biotechnology-related equipment and consumables. The exact amount would need to be assessed on a case-by-case basis.

¹⁴ The FC approved injections of \$5 billion into the ITF in 1999 and 2015 respectively. In 2016, FC injected \$2 billion into the ITF to set up the MRP, and another \$2 billion for the establishment of the ITVF.

¹⁵ This refers to the approved amount of funding, which is higher than the actual disbursement and outstanding commitment (about \$13.5 billion in total) because unspent funding from completed projects is released for further commitment.

EXPECTED BENEFITS

22.	In general, the	proposed injection	into the ITF will –

- (a) provide sustained and comprehensive support for applied R&D activities and raise the level of the Gross Expenditure on R&D in Hong Kong;
- (b) encourage R&D collaboration between universities/public research institutions and private companies, and amongst the local, overseas and Mainland research communities;
- (c) support the upgrading and development of our industries to meet the changing economic environment;
- (d) encourage more private investment in R&D and technopreneurial activities;
- (e) facilitate the application of R&D outcomes in the public sector and improve the quality of life of the community;
- (f) create more I&T jobs and nurture more I&T talent; and
- (g) facilitate technology adoption and foster a vibrant I&T culture and ecology in Hong Kong.

23. Specifically, setting up the two research clusters at the Science Park will bring about benefits which include –

- (a) leveraging our strong basic research capability to develop our own industries on healthcare technologies and AI and robotics technologies;
- (b) fostering more synergy and collaboration among top local, overseas and Mainland researchers and industry in Hong Kong;
- (c) encouraging public-private partnership in I&T development;
- (d) attracting top technology talents from all over the world to Hong Kong, while at the same time training and building up a pool of local talents; and
- (e) reinforcing Hong Kong's position as the major international I&T hub in the Guangdong-Hong Kong-Macao Bay area and putting Hong Kong on the global technology map.

CONTROL AND REVIEW MECHANISM

24. There is already in place a robust control mechanism to ensure the proper and efficient use of the ITF. In brief, all applications are vetted by professional panels according to the assessment framework of the relevant funding scheme¹⁶. Each scheme has its own guidelines on, inter alia, the usage of ITF funding, procurement arrangements, reporting and auditing requirements, disbursement of grants and return of residual funds, etc. All these information, alongside key information of approved projects¹⁷, are available on ITF's website for public reference.

25. ITC conducts progress meetings/site inspections to verify the project progress and usage of funds as set out in the project reports. Funds for the next stage will be disbursed only if the project is able to meet pre-set milestones. In case of non-compliance with the funding guidelines or where project progress is unsatisfactory, we may withhold the disbursement of funds. ITC will continue to enforce the control mechanism, review and make necessary enhancements as appropriate.

26. For the research centres/laboratories to be set up at the two research clusters in the Science Park, we will work out a tripartite agreement for each of them to be signed between ITC, the parent institution of the centre/laboratory and the HKSTPC. The agreement will set out clearly the respective rights and obligations of different parties, including the modus operandi of the research centre/laboratory, the area of research, sharing of intellectual property rights, the arrangement for and minimum number of research team leaders/members dispatched from the parent institution to the research centre/laboratory, financial governance matters (e.g. open tender requirements) when public monies are involved, and arrangements for hiring and training of local talents, etc.

27. To ensure strong governance and accountability, we will put in place a rigorous governance regime to ensure that the quality and focus of publicly-funded research activities at the two research clusters align with our expectations and overall directions. A Governing Committee will be set up for each cluster to approve the admission of institutions and oversee the operation of the cluster, including keeping track of key performance indicators.

/28.

¹⁶ The boards of R&D centres have their own technology committees/panels to vet project proposals.

¹⁷ Key information includes the names of the project /recipient institution(s) and the funded amount.

28. The Governing Committee will be supported by various functional committees. For example, a Technology Committee or Science Committee will be set up to vet the research directions and focused areas of the centre/laboratory; an Audit Committee to vet and approve the financial accounts submitted by the research centres/laboratories within the cluster; and a Facility Committee to consider and plan for the ancillary technical facilities needed to support the clusters. Other functional committees could be set up as and when necessary.

29. We will set up key performance indicators to closely monitor and ensure the benefits accrued to Hong Kong. As an illustration, the two research clusters, when in full operation, are expected to focus on over 100 research programmes at any one time. Assuming each centre has a headcount of 60, the two clusters will provide around 1 200 technology-related job opportunities.

FINANCIAL IMPLICATIONS

30. The proposed injection of \$10 billion is projected to be adequate to sustain the operation of the existing and new funding schemes/support programmes under the ITF for around five years until 2022-23. The actual expenditure may vary depending on the number and amount of funding applications approved under different schemes/programmes, and whether there would be further new schemes/programmes in the future.

31. The proposed injection of another \$10 billion for the creation of a new commitment under the ITF should be sufficient to provide financial support for the operation of the research clusters for 10 to 15 years.

32.	For budgetary purpose, the indicative cash flow by financial year for
the additional	\$20 billion is as follows –

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 and beyond	Total			
	(\$ million)									
Operation of existing and new funding schemes/ support programmes	291	2,607	2,233	2,598	2,271	-	10,000			
Operation of the research clusters	400	960	960	800	960	5,920	10,000			

33. Subject to Members' approval, we will create a new and dedicated subhead under Head 111 Innovation and Technology to finance the establishment of research clusters and arrange funding injection of a total of \$20 billion into the ITF. Technically, this involves seeking a supplementary provision of \$20 billion for Head 184 Transfer of Funds of the General Revenue Account to effect the funding transfer to the ITF.

34. We have included necessary provision in the Estimates of ITC of the relevant financial years to implement the proposed new initiatives under ITF.

II. EQUITY INJECTION INTO HKSTPC AND HKCDHL

A. EQUITY INJECTION INTO HKSTPC

JUSTIFICATION

35. HKSTPC has been the Government's key executive agent that manages our flagship I&T infrastructure i.e. the Science Park and industrial estates (IEs), providing facilities, services and a dynamic environment that enable technology companies to nurture ideas, innovate and develop. To enable HKSTPC to sustain its important role in Hong Kong's I&T development amidst intensive competition in the region, we consider it necessary to provide additional resources to HKSTPC to strengthen its infrastructure and enhance support for its tenants/incubatees.

Research-related Infrastructure and Facilities

36. We propose that funding be made available for HKSTPC to provide a range of facilities to foster the research work in healthcare and AI and robotics technologies. Key facilities include –

Laboratory and Work Spaces for Researches

- 37. HKSTPC is planning to¹⁸
 - (a) convert a building in the Science Park to make available about 178 000 ft² of laboratory space for healthcare researches. HKSTPC plans to commence renovation works within 2018, with a view to having the first batch of laboratory spaces available in 2019, and the remaining in 2020;

/(b)

¹⁸ Subject to further planning and possible changes, as the venue requirements are dependent on user needs and the feasibility of juggling existing tenants.

- (b) identify another 20 000 ft² of laboratory space with higher loading for setting up robotics laboratories; and
- (c) set aside additional floors in two new buildings for laboratory and work spaces for healthcare and AI and robotics technologies researches.

Facilities for Healthcare and AI and Robotics Technologies Researches

38. Healthcare researches require a host of bespoke facilities. At present, most of these facilities are only available in universities. They are small in scale and can barely meet the needs of their own research teams. Many healthcare researchers need to source from/outsource to overseas service providers, which is very costly and time-consuming. Besides, AI and robotics researches require facilities for standard testing. We therefore propose to provide 'one-stop' core facilities, including for example –

- (a) *Pilot Batch Production Facilities* for Good Manufacturing Practice (GMP) grade pilot batch production of biomedical products for clinical trial purposes;
- (b) Animal Research and Drug Testing Facilities which strictly comply with local legislation and international standards for pre-clinical trial tests, such as drug efficacy tests and toxicology studies, which are essential for verifying the safety and efficacy of new medicines or therapies;
- (c) *Bio Bank and Medical Informatics* to centrally house human and other biological samples and the associated clinical records, etc.;
- (d) *GMP Production Facilities* which are specialised GMP grade facilities for various uses;
- (e) *Robo Standard Testing Laboratory* to measure the performance of robots, etc.; and
- (f) *Robotics Catalysing Centre* for solution providers and system integrators to carry out development work, integration, assembly processes, as well as validation and factory acceptance tests, etc.

/Strengthening

Strengthening Support Measures for Tenants/Incubatees

39. In recent years, there has been keen competition from other jurisdictions in attracting technology enterprises. With a view to attracting more Mainland and overseas renowned technology enterprises to set up in Hong Kong, as well as to further assist local I&T start-ups to grow and expand, it is necessary for HKSTPC to provide more support measures and incentives to its tenants/incubatees. We propose that funding be made available for HKSTPC to implement the following initiatives –

- (a) Expansion of Incubation Programme: Start-ups are vital to a strong I&T ecosystem. HKSTPC has in place an incubation programme that offers subsidised office space, financial assistance¹⁹, technical and development assistance, business matching etc. to technology start-ups. There are currently 263 incubatees²⁰ in the Science Park. We propose to increase the number of incubatees to 500 by 2022-23. The additional resources will provide for increased subsidies and enhanced support to technology start-ups. Where appropriate, HKSTPC will acquire stock options of individual incubatees in exchange for the incentives being offered.
- (b) Expansion of the Corporate Venture Fund (CVF): HKSTPC established a \$50 million CVF in 2015 to co-invest, on a matching basis with private funds, in its tenants/incubatees. CVF has been effective in bridging the funding gap and in encouraging more private investment in early stage start-ups. By now, it has already committed the entire fund in nine investments, attracting more than \$550 million from co-investors. We propose to expand the CVF and introduce other investment programmes as appropriate such that HKSTPC can continue to catalyse the growth of more technology start-ups. Based on past experience 21 , we estimate that around 90-100 tenants/incubatees could benefit.
- (c) *Development of a Smart Campus*: We aspire to make the Science Park a living laboratory to try out innovative products and solutions that come under four themes, namely, smart mobility, smart environment, smart living and smart people. HKSTPC will set up the infrastructure necessary for testing smart solutions, including expanding the data platform, building sensor networks and connectivity system, and

/developing

¹⁹ The financial assistance varies among industries. The maximum amount (in kind and in cash) is \$240,000 over four years.

²⁰ Figure as at end March 2018.

²¹ The average size of investment for each CVF case in the past years is around \$5.5 million.

developing systems to upgrade data authentication and security. An advisory committee has been set up to make recommendations on Smart Campus development. HKSTPC's initial plan is to work on over 40 smart projects in the coming five years.

- (d) Accommodation Support: The InnoCell, which will provide residential units and ancillary facilities for leasing to eligible tenants, incubatees and Mainland/overseas visitors of the Science Park, is targeted for operation in 2021. To address the imminent accommodation needs of start-ups and to help attract and retain I&T talents, we propose providing funding to enable HKSTPC to offer accommodation support in the interim.
- (e) *Support for Tenants*: In view of the aggressive incentives that neighbouring cities are offering, we propose to enable HKSTPC to offer incentives for targeted companies to set up operations at the Science Park and IEs and to sustain the support for current tenants. To allow flexibility for HKSTPC to achieve the best commercial outcomes in offering incentives, we propose that the form and level of support may vary with the size and nature of the companies concerned. Possible options include capital or operation cost support on a dollar-to-dollar matching basis, rental concession and/or equity acquisition and other targeted support measures, which are subject to the scrutiny of the Board of Directors of HKSTPC in accordance with its corporate governance procedures.
- (f) *Ancillary Facilities*: To cater for the sharp rise in the working population in the Science Park, HKSTPC will need to enhance the ancillary facilities therein to improve accessibility and operational efficiency such as improving transportation infrastructure and energy efficiency.

Proposed Financial Arrangement

40. We consider it appropriate to provide financial support in the form of an equity injection of \$10 billion into HKSTPC with a view to facilitating early delivery of the initiatives. In recommending the proposed financial arrangement, we have taken into account HKSTPC's overall financial position and cash flow projections. HKSTPC has shouldered over \$6 billion of debts²² for the development of Science Park Phases 2 and 3, the development of the Advanced Manufacturing Centre and Data Technology Hub in IEs as well as the InnoCell,

/which

²² Including the principal loans and interests arising therein.

Encl. 2

which have to be repaid within the next 20 years. HKSTPC does not have a large financial reserve and it has deployed its operation surplus for the development, improvement and maintenance of its premises and facilities as well as its operations. HKSTPC's cash flow projection is at Enclosure 2.

41. A rough indicative estimate of the various facilities and measures is set out below²³. Given the specialised and evolutionary nature of the healthcare and AI and robotics technologies clusters, further discussions with experts in the field and prospective research centre operators would be needed to determine the scale of the related facilities, their business/operation mode, as well as the associated costs.

	<u>Items</u>	Estimated Cost (\$ million)
<u>Resea</u>	rch-related Infrastructure and Facilities	
(i)	Provision of lab spaces for healthcare and AI and robotics technologies researches	460
(ii)	Facilities for healthcare and AI and robotics technologies researches	2,700
<u>Supp</u>	ort Measures to Support the Overall I&T Community	
(iii)	Expansion of Incubation Programme	2,400
(iv)	Expansion of CVF	500
(v)	Smart Campus	300
(vi)	Accommodation Support	100
(vii)	Support for tenants	3,000
(viii)	Ancillary Facilities	540
	Total:	10,000

/42.

²³ Having regard to the plans of HKSTPC to devote more resources on developing the research-related facilities, adjustments on the deployment of resources amongst expenditure items have been made as compared to the indicative breakdown set out in LC Paper No. CB(1) 921/17-18(05) considered by the C&I Panel on 15 May 2018. The additional manpower requirement in taking forward the initiatives will be covered by the relevant project budget or from HKSTPC's own resources.

42. With the fast-changing and dynamic technology scene, we foresee that there may be a need to change the scope and scale of the above proposals. We propose to allow flexibility in the deployment of resources between the expenditure items to best fit HKSTPC's needs and the evolving circumstances. The Innovation and Technology Bureau (ITB) will vet and approve requests from HKSTPC for deployment of resources.

EXPECTED BENEFITS

43. HKSTPC has commissioned a study to assess the economic impact of developing the proposed research-related facilities and implementing the various supporting measures for its tenants/incubatees. The study concluded that there are compelling reasons to take forward various proposed initiatives, both in terms of economic benefits as well as wider benefits to the overall community. The proposed initiatives will help attract more local, Mainland and overseas technology enterprises and start-ups to set up operations in the Science Park, as well as to incentivise the existing ones to stay and expand their operations. These companies will bring about new employment opportunities at the Science Park and thereby contributing to Hong Kong's Gross Domestic Product. It is estimated that when the proposed initiatives are fully implemented by 2025, the employment opportunities at the Science Park will increase by around 4 600 jobs from 17 200 jobs (when Science Park Phase 1 to 3 and stage 1 expansion programme (SPX1) achieve full occupancy) to around 21 800 jobs. The total value added of the Science Park will be increased by around \$5.3 billion from \$20 billion²⁴ (when Science Park Phase 1 to 3 and SPX1 achieve full occupancy) to more than \$25.3 billion per year 25 .

44. In addition, it is roughly estimated that the construction of various infrastructure and facilities would result in approximately HK\$1,000 million value added and 1 500 man-years of employment.

45. The infrastructure and facilities and the enhanced support measures described above will strengthen the I&T ecosystem and research capability of Hong Kong. In addition, it will help build up linkages between technology

/companies

²⁴ The figure is at 2017 prices. It includes approximately \$13.4 billion of direct value added and \$6.6 billion of indirect and induced value added. This figure is equivalent to around \$19 billion in 2014 prices as estimated by the consultant commissioned for assessing the economic benefits for SPX1.

²⁵ The figure is at 2017 prices. It includes approximately HK\$17 billion direct value added and HK\$8.3 billion indirect and induced value added.

companies and researchers, attract more foreign investment and talents, nurture I&T talents and start-ups, create more high value-added jobs for our youngsters and foster the development of Hong Kong as a knowledge-based economy. The expansion of CVF will also help build a vibrant venture capital investment market. The proposed initiatives will also craft Hong Kong in a pioneer position to support other I&T value chains (such as manufacturing and commercialisation) within the Greater Bay Area.

CONTROL MECHANISM

46. The HKSTPC Ordinance (Cap. 565) stipulates that the Corporation is required to operate in accordance with prudent commercial principles. HKSTPC has a well-established governance structure. Its Board of Directors, underpinned by four committees on business and administration, finance management, facility and project management, and audit, steers and monitors the development and administration of facilities and will continue to ensure compliance with its procedures and standards²⁶. HKSTPC has also put in place well-established procedures and guidelines in assessing applications for admission and implementation of various support measures to ensure fairness and proper use of public money, which is subject to the monitoring of its Board of Directors. Building on the existing mechanism, HKSTPC will set out detailed and specific selection criteria for each support measure.

47. The Government will continue to monitor the implementation of the proposed measures through HKSTPC's Board of Directors. To ensure the proper use of resources, HKSTPC will regularly report to the ITC the progress of implementing various facilities and measures. In accordance with the standing practice, the Government will brief the LegCo Panel on Commerce and Industry (C&I Panel) on the latest development of the Science Park on a regular basis.

FINANCIAL IMPLICATIONS

48. Subject to Members' approval, the Government will inject 10 billion as equity to HKSTPC from 2018-19 to 2021-22 having regard to the cashflow requirements of the measures. An indicative capital injection schedule²⁷ by the Government is as follows –

/2018-19

²⁶ HKSTPC has in place well-established corporate governance procedures for budget control, as well as tendering process for consultancy and works contracts that are modelled on Government's procedures and practices.

²⁷ The actual capital injection schedule will depend on the progress of works and market situation.

	Equity Injection by the Government (\$ million)
2018-19	2,000
2019-20	3,000
2020-21	3,000
2021-22	2,000
Total:	10,000

49. The funding proposal has no recurrent financial implications for the Government. Should the project costs exceed the current estimate, HKSTPC is expected to bridge the funding gap using its own resources.

B. EQUITY INJECTION INTO HKCDHL

JUSTIFICATION

50. Cyberport plays an important role as Hong Kong's flagship institution in promoting information and communications technology (ICT) development. Over the years, Hong Kong Cyberport Management Company Limited (HKCMCL), HKCDHL's wholly-owned subsidiary, has put in place a comprehensive public mission programme to nurture digital technology start-ups at different stages of their development. Given its experience and network, we consider it imperative to provide \$200 million for Cyberport to enhance its existing measures and introduce new support schemes for start-ups and tenants. In addition, we propose to provide \$100 million for Cyberport to undertake various initiatives to promote the development of e-sports in Hong Kong, including provision of a dedicated e-sports competition venue. Details are set out below.

Enhancing Existing Measures

Cyberport Incubation Programme

51. HKCMCL launched the Cyberport Incubation Programme in 2005 which provides financial, technical and business advisory support to digital technology start-ups to help them turn their creative ideas into business undertakings or commercial products. At present, an incubatee may receive a financial subsidy up to \$330,000 to meet expenses in areas like marketing, professional services, training, and hiring of interns. The incubation programme has doubled its annual quota from 50 to 100 since 2016. As at end April 2018, the Cyberport Incubation Programme has admitted a total of 529 start-ups.

52. To enhance its support to start-ups and having regard to cost increases over the years, HKCMCL intends to increase the level of financial subsidy under its Incubation Programme from \$330,000 to a maximum of \$500,000. HKCMCL will also improve the coverage of subsidy and administrative procedures, including increasing the working capital grant, enhancing assistance in professional services, supporting marketing and promotion, incentivising innovation and R&D, as well as assisting in talents recruitment, etc. At the same time, HKCMCL will introduce subsidy for operating expenses in the area of digital technology, such as subscription of data feeds and cloud computing services, Smart-Space rental and hardware expenditure in relation to product R&D, so as to help start-ups lower their operating expenses.

53. We propose to provide \$85 million to enhance Cyberport's Incubation Programme as outlined above. It is expected that about 100 start-ups will be benefited annually in the next five years.

Cyberport Creative Micro Fund

54. HKCMCL set up the Cyberport Creative Micro Fund (CCMF) in 2009 which provides seed funding of \$100,000 for each selected project to help entrepreneurs turn their innovative ideas into prototype products. CCMF has approved a total of 379 projects over the years.

55. Under the Space Sharing Scheme for Youth, HKCMCL will soon open a Smart-Space co-working space in Tsuen Wan to accommodate about 140 users. Apart from the well-equipped office facilities and a flexible leasing scheme, a series of entrepreneurial trainings and support services, such as industry networking events, mentorship programme, workshops, investment matching sessions, etc. will be provided in the co-working space to facilitate young entrepreneurs in raising capital, expanding their business and continuing to innovate. We propose to provide \$15 million for tenants of the Tsuen Wan Smart-Space from CCMF.

New Initiatives

Overseas/Mainland Market Development Support Scheme

56. Following the launch of digital technology products or service solutions, start-ups will then need to explore new markets as soon as possible to increase its income and more importantly to raise capital for the next phase of development (including investments or equity injection by venture capital funds).

In view of the smaller scale of the local market, our start-ups need to actively explore overseas and Mainland markets. To enable start-ups to enter these markets more effectively and quickly, HKCMCL will establish the Overseas/Mainland Market Development Support Scheme to provide a financial subsidy of up to \$200,000 to start-ups which have completed the Cyberport Incubation Programme or CCMF. The subsidy will be provided on a reimbursement basis to further support the start-ups in conducting market research and promotion, as well as participating in business missions, trade fairs and exhibitions etc. outside Hong Kong.

57. We propose to provide \$50 million for taking forward this new initiative. It is expected that a total of about 250 start-ups will be benefited in the next five years.

Easy Landing Scheme

Encl. 3

58. Over the years, HKCMCL has attracted a number of multi-national corporations to set up offices in Cyberport. Among the existing 100 commercial tenants (excluding users of Smart-Space), about 30 are non-local companies. HKCMCL's past experience suggests that these non-local companies not only help raise the profile and status of Cyberport, their operation and global connection and network can also assist the talents nurtured by Cyberport in their further work in respect of business operation and technological development, including training, overseas network and financing opportunities.

59. In the light of the above, HKCMCL intends to set up an Easy Landing Scheme under which rental concession will be provided to attract multi-national corporations to enter Cyberport and set up offices and R&D units there. The target companies include overseas and Mainland leading Internet enterprises and financial technology (FinTech) companies, well-known brands or disruptive technology in the industry, or well-established companies with unique business model. HKCMCL will offer eligible companies a rental concession of \$1 million or 50% of the rental for a period of up to five years. Details of the Scheme are at Enclosure 3. We propose to provide \$50 million for implementing the Easy Landing Scheme.

E-sports Competition Venue/E-sports and Digital Entertainment Node

60. One of the major issues faced by the local e-sports sector is the shortage of competition venues. Provision of dedicated venues will help reduce time and manpower in terms of event management, thereby allowing more regular

e-sports activities to be held locally and enabling e-sports talents to accumulate more hands-on experience. We propose to develop the Cyberport Arcade into an e-sports and digital entertainment node, including the conversion of the Ocean View Court and Sea View Terrace in the Arcade into a venue for e-sports competitions. The venue will be equipped with facilities such as combat arena, lighting and audio systems, large screens for e-sports competitions, filming equipment, simulcast system, as well as high-speed network connection. The venue, with an area of about 4 000 ft², could accommodate about 500 spectators and is suitable for hosting small to medium-scale e-sports competitions and training sessions. The estimated development cost is \$50 million and the venue is expected to be open by phases in 2018-19. HKCMCL anticipates that on average about six to eight e-sports events will be held each year.

61. The initiative is also supported by tenants in the Arcade. While HKCMCL will accord priority in leasing the venue to organisers of e-sports competitions and e-sports teams, other digital industry-related activities may also be staged at the venue.

Development of E-sports Industry and Nurturing Talents

62. We propose to provide \$50 million to HKCMCL to support the development of the e-sports industry, including organising local and regional competitions and major events, training programmes and public promotion activities. HKCMCL will also improve its start-up and talent nurturing system to identify and equip start-ups and talents relating to e-sports technologies and game development. These initiatives include –

- (a) facilitating the development of e-sports and digital entertainment industries, including the provision of funding to local e-sports organisations/associations for hosting local competitions, international qualifying competitions and training activities in the new dedicated venue of Cyberport. HKCMCL also plans to sponsor the industry to participate in business missions and overseas exhibitions organised or recognised by Cyberport. HKCMCL will work out the relevant application procedures;
- (b) nurturing e-sports and digital entertainment start-ups, including additional dedicated quotas under its existing Incubation Programme in areas such as live streaming, Virtual Reality/Augmented Reality/Mixed Reality (VR/AR/MR), motion sensoring and tracking, data analysis, digital audio-visual technology, etc.;
- (c) facilitating enterprises in providing internship opportunities in e-sports and digital entertainment;

- (d) organising summits/seminars on e-sports industry development; and
- (e) promoting e-sports, including setting up an experience corner in its Arcade to invite relevant parties to organise experiential activities with a view to offering the public first-hand experience of the e-sports technology.

Proposed Financial Arrangement

63. We consider it appropriate to provide financial support in the form of an equity injection of \$300 million into HKCDHL with a view to facilitating Cyberport's early delivery of the initiatives. The sum will be transferred to HKCMCL for taking forward the proposed initiatives.

64. In recommending the proposed financial arrangement, we have taken into account HKCMCL's overall financial position and funding commitments of on-going and new initiatives, as well as the need to maintain an adequate level of cash balance to cater for its operational needs and unforeseen business risks. In particular, taking into account the initiatives announced in the Policy Address in the past two years, HKCMCL's expenditure on public mission programmes has progressively increased from \$82.7 million in 2015-16 to \$113 million in 2017-18. It also needs to undertake large-scale maintenance and upgrading works in the next few years to ensure its campus condition and facilities are up to modern standards. HKCMCL's cashflow projection is at Enclosure 4.

65. The \$300 million equity injection would have a financial return of over 5% in real terms²⁸ over 50 years, with the net cash flow mainly generated from the e-sports initiatives. We consider this level of return acceptable.

EXPECTED BENEFITS

Encl. 4

66. The initiatives set out in paragraphs 51 to 62 above will bring about the following benefits –

(a) enhancing HKCMCL's funding support under its Incubation Programme and CCMF will encourage more local entrepreneurs to choose an I&T start-up career path and attract and identify talents who have the interest and potential in the field of I&T as well as increasing employment opportunities for the youth in particular.

/(b)

²⁸ The financial return is calculated based on the net cash flow in present value arising from the revenues generated from, and additional costs (e.g. capital and operating expenditure) incurred by the proposal.

- (b) the Overseas/Mainland Market Development Support Scheme will assist Cyberport start-ups in expanding their sales network, which in turn enhance their quality and competitiveness in attracting investment from venture capitalists or even fundraising in the stock market. This in the longer term will increase potential applications for the Cyberport Macro Fund. Apart from supporting further development of its start-ups, this may also enhance the investment return from the Cyberport Macro Fund operation in future.
- (c) through the Easy Landing Scheme, more multi-national corporations will be attracted to Cyberport, thus expanding its global network. These flagship enterprises will help encourage more innovative digital technology companies to set up business and operation in Cyberport and thus contribute to the Cyberport ecosystem in various aspects, including knowledge and experience sharing with other tenants, generation of new ideas, product and business development as well as creation of investment opportunities. Such enterprises will also consider investing in Cyberport's start-ups, hence foster further development of the Cyberport start-up community;
- (d) the presence of these corporations will bring employment and internship opportunities, promote the development of start-ups through providing training, exchanges and opportunities for networking, etc.. The setting up of R&D centres by multi-national corporations can assist Hong Kong in training and developing R&D talents, thus contributing to overall I&T development;
- (e) the presence of anchor tenants through the Easy Landing Scheme helps attract more leading I&T firms and start-ups to join the Cyberport community;
- (f) the dedicated e-sports competition venue in the Arcade can generate additional rental and retail income to Cyberport to make its operation more sustainable. In addition, organisation of local and regional competitions in the Arcade, as well as training programmes and public promotion activities will enhance visitors' flow to the Cyberport campus as a whole, which will create additional income in terms of shop rental, advertising revenue, professional service fees, etc., as well as bring in ancillary income for hotel and carparks;
- (g) as a relatively new sector with great economic development potential for Hong Kong, development of e-sports can help boost other sectors in the supply chain such as the local gaming, digital entertainment and technology, media and telecommunications industries, and the

/application

application of VR technologies. These include manufacturers of specialised e-sports products, technology companies engaging in live streaming technologies, Internet service providers, live anchors and commentators, and personnel engaging in sound engineering, lighting, stage sets, music composition, animation as well as script writing and directing which contribute to talent development in relevant areas and provide more job opportunities; and

(h) organising major e-sports events can also attract Mainland and overseas visitors to Hong Kong, fostering the diversified development of tourism, as well as benefiting catering, hospitality and retail sectors.

CONTROL MECHANISM

67. Cyberport conducts its business according to prudent commercial principles within the overall objectives and guidelines set by the Government. It has established company and governance procedures and guidelines in assessing applications for admission to its funding and supports schemes, which is subject to the monitoring of its Board of Directors and relevant committees. HKCMCL will put in place a proper control mechanism to monitor the implementation of the initiatives under its established corporate governance framework. The Government will monitor the implementation through the Board of Directors of HKCMCL. We will hold regular meetings with the Cyberport management team to review the overall operation of Cyberport and progress of major initiatives, including the use of the funding injection and the financial position of the company.

FINANCIAL IMPLICATIONS

68. Subject to Members' approval, the Government will inject \$300 million as equity to HKCDHL in 2018-19. Having regard to the fast-changing and dynamic technology scene, we propose to allow flexibility in the deployment of resources between the expenditure items to best fit Cyberport's needs and the evolving circumstances. ITB will vet and approve requests from HKCMCL for redeployment of resources.

69. The funding proposal has no recurrent financial implications for the Government. Should the project costs eventually exceed the current estimate, HKCMCL is expected to bridge the funding gap using its own resources.

/**PUBLIC**

PUBLIC CONSULTATION

70. We consulted the LegCo C&I Panel on 20 March and 15 May 2018 respectively regarding the injection into ITF, the establishment of the two research clusters, as well as the proposal to provide additional resources to HKSTPC. The Panel supported in principle the submission of the relevant proposals to the FC.

71. We consulted the LegCo Panel on Information Technology and Broadcasting on 14 May 2018 on the allocation of \$300 million to Cyberport. Members generally supported the submission of the relevant proposal to the FC.

BACKGROUND

I&T Development in Hong Kong

72. I&T development is among the top policy priorities of the Government. The CE has in her Policy Address delivered in October 2017 set out eight major areas²⁹ to spearhead I&T development in Hong Kong. Subsequently, the 2018-19 Budget has set aside \$50.3 billion for new I&T initiatives, among which \$30.3 billion are for sustaining the operation of ITF, establishment of the research clusters and funding allocation to the HKSTPC and the HKCDHL.

The ITF

73. The ITF was established by Resolution passed by the LegCo on 30 June 1999 as a statutory fund under section 29 of the Public Finance Ordinance (Cap. 2) to finance projects that contribute to I&T upgrading and development in manufacturing and services industries in Hong Kong with a view to enhancing Hong Kong's economic development.

HKSTPC/Science Park

74. HKSTPC is a statutory body established in 2001 with a public mission to facilitate the establishment and the nurturing of a world-class technology community dedicated to applied R&D in Hong Kong. The Government is the sole

/shareholder

²⁹ The eight major areas include: (a) increasing resources for R&D; (b) pooling together technology talent; (c) providing investment funding; (d) providing technological research infrastructure; (e) reviewing existing legislations and regulations; (f) opening up government data; (g) Government to lead changes to procurement arrangements; and (h) strengthening popular science education.

shareholder of HKSTPC, which is governed by a Board of Directors appointed by the Government. HKSTPC operates and manages Science Park, the three IEs at Tai Po, Yuen Long and Tseung Kwan O, and the InnoCentre at Kowloon Tong.

HKCDHL/Cyberport

75. Established in 1999, HKCDHL is a private company wholly-owned by the Government to implement the Cyberport Project. The operation of the Cyberport campus and implementation of the public mission programmes are undertaken by HKCDHL's wholly-owned subsidiary, HKCMCL.

Innovation and Technology Bureau Innovation and Technology Commission June 2018

Funding Schemes/Support Programmes under the Innovation and Technology Fund

At present, there are 12 funding schemes under the Innovation and Technology Fund (ITF). They can be categorised as follows –

Supporting Research & Development (R&D)

- (a) the <u>Innovation and Technology Support Programme</u> (ITSP) which supports R&D projects undertaken by local universities¹ as well as public research institutions². As at end March 2018, 2 478 projects have been supported, with total funding of some \$8.8 billion;
- (b) the <u>University-Industry Collaboration Programme</u> (UICP) which provides dollar-for-dollar matching fund for R&D jointly undertaken by private companies and local universities. As at end March 2018, 337 projects involving six universities and 239 private companies have been supported, with total funding of \$413 million;
- (c) the <u>Enterprise Support Scheme</u> (ESS) which was introduced in 2015 to provide dollar-for-dollar matching of up to \$10 million for private companies to carry out R&D projects. So far, the ESS Assessment Panel has considered 287 applications, of which 74 were supported. They involve 68 private companies, with private sector contribution of \$280 million and ITF contribution of \$233 million;
- (d) the <u>Research and Development Cash Rebate Scheme</u> (CRS) which was introduced in 2010 to provide cash rebate³ to private companies for their expenses in ITF R&D projects, or other contract R&D

/projects

¹ Institutions funded by the University Grants Committee (UGC) have been eligible since 1999. Self-financing degree-awarding institutions registered under the Post-Secondary Colleges Ordinance (Cap. 320) have been eligible since July 2017.

² They are the Hong Kong Productivity Council, the Hong Kong Applied Science and Technology Research Institute, the Nano and Advanced Materials Institute (NAMI), the Logistics and Supply Chain MultiTech R&D Centre (LSCM), the Hong Kong Research Institute for Textiles and Apparel (HKRITA), the Automotive Parts and Accessory Systems R&D Centre (APAS), the Vocational Training Council, the Clothing Industry Training Authority and the Hong Kong Institute of Biotechnology.

³ The level of cash rebate was 10% in 2010, and was increased to 30% in 2012, then to 40% in 2016. The CRS was subsumed under the ITF from 2016-17.

projects funded by these companies and undertaken by local universities/public research institutions. As at end March 2018, 1 098 companies have been granted cash rebate of about \$342 million;

(e) the <u>Midstream Research Programme for Universities</u> (MRP) which was introduced in late 2016 for midstream research projects undertaken by UGC-funded institutions. As at end March 2018, eight projects have been supported, with total funding of some \$33.6 million;

Facilitating Technology Adoption

- (f) the Public Sector Trial Scheme (PSTS) which supports public sector bodies to try out new technologies or products developed in ITF projects and by incubatees/graduate tenants of the HKSTPC and Cyberport. As at end March 2018, 172 projects have been supported with funding of some \$280 million, benefitting over 250 organisations;
- (g) the Technology Voucher Programme (TVP) which was introduced in late 2016 to subsidise local enterprises, on a 2:1 basis, to use technology solutions to improve productivity, or facilitate the upgrading/transformation of their business process. So far, 1 016 companies have submitted applications, 146 of them were returned as they were incomplete. For the 620 that have undergone assessment, 590 were supported with total funding of \$79.1 million. The success rate is 95%;

Nurturing Technology Talent

(h) the Internship Programme which supports ITF projects and incubatees/I&T tenants of HKSTPC and Cyberport to hire local graduates as R&D interns, thereby nurturing more I&T talent. Since the launch of the programme in 2004, we have supported about 3 200 interns with funding of over \$710 million. Some 70% of them indicated that they would be interested in pursuing a career in I&T-related areas;

/Supporting

Supporting Technology Start-ups

- (i) the Technology Start-up Support Scheme for Universities (TSSSU) which was launched in 2014 to support university faculties and students to start technology businesses and commercialise their R&D results. An annual funding of \$4 million is provided to each university⁴;
- (j) the Innovation and Technology Venture Fund (ITVF) which was rolled out in late 2017 to co-invest with private venture capital funds in local I&T start-ups with an overall matching ratio of approximately 1:2;

Promoting an I&T Culture

- (k) the General Support Programme (GSP) which supports non-R&D projects that help upgrade local industries and promote an I&T culture in Hong Kong. As at end March 2018, the programme has funded 191 projects with some \$280 million; and
- the Patent Application Grant (PAG) which provides funding support for first-time patent applicants. As at end March 2018, 2 035 applications have been funded, involving \$377 million and resulting in 631 applicants with patents granted⁵.

The operation of research centres/laboratories and university technology transfer offices funded under other support programmes of the ITF are summarised below –

- (a) four R&D centres i.e. NAMI, LSCM, HKRITA and APAS⁶;
- (b) the technology transfer offices (TTOs) of six UGC-funded universities. Each TTO may receive up to \$4 million each year;

/(c)

⁴ Universities that receive the subsidies are the Chinese University of Hong Kong, the City University of Hong Kong, the Hong Kong Baptist University, the Hong Kong Polytechnic University, the Hong Kong University of Science and Technology and the University of Hong Kong.

⁵ PAG was set up in 1998 and merged into the ITF in 2002.

⁶ In December 2015, the FC approved \$677.6 million from the ITF to support the operation of the four R&D centres up to 31 March 2021. Since 2006, a total commitment of \$1,696.6 million ITF has been approved to fund their operation.

- (c) the 16 Partner State Key Laboratories (PSKLs) in Hong Kong. Each PSKL may receive up to \$5 million each year; and
- (d) the six Hong Kong branches of Chinese National Engineering Research Centres (CNERCs). Each CNERC Hong Kong branch may receive up to \$5 million each year.

Cash Flow Projection of the Hong Kong Science and Technology Parks Corporation (in \$ million)

	<u>2018-19</u>	<u>2019-20</u>	<u>2020-21</u>	<u>2021-22</u>	<u>2022-23</u>	<u>2023-24</u>	<u>2024-25</u>	<u>2025-26</u>	<u>2026-27</u>	<u>2027-28</u>	Total 2018-19 to <u>2027-28</u>
Opening cash balance	10,710	10,012	7,831	5,243	4,942	2,389	1,637	609	441	831	10,710
Net cash flow excluding the \$10 billion Government injection	(2,199)	(2,769)	(3,192)	(629)	(1,441)	108	(516)	307	422	667	(9,242)
Available cash excluding the \$10 billion Government injection	8,511	7,244	4,639	4,614	3,501	2,496	1,121	916	863	1,498	1,468
Costs for implementing the proposed initiatives (Note)											
 Provision of laboratory space for healthcare and AI and robotics technologies researches 	(78)	(332)	(32)	(18)	-	-	-	-	-	-	(460)
(2) Facilities for healthcare and AI and robotics technologies researches	(60)	(697)	(1,384)	(474)	(85)	-	-	-	-	-	(2,700)
(3) Expansion of Incubation Programme	(199)	(744)	(328)	(336)	(353)	(275)	(94)	(56)	(15)	-	(2,400)
(4) Expansion of CVF	-	(69)	(69)	(69)	(69)	(75)	(75)	(75)	-	-	(500)
(5) Smart campus	(66)	(86)	(61)	(46)	(41)	-	-	-	-	-	(300)
(6) Accommodation support	(4)	(31)	(36)	(29)	-	-	-	-	-	-	(100)
(7) Support for tenants	(83)	(332)	(337)	(586)	(463)	(465)	(342)	(344)	(17)	(30)	(3,000)
(8) Ancillary facilities	(10)	(122)	(150)	(114)	(102)	(44)	-	-	-	-	(540)
Government equity injection of \$10 billion	2,000	3,000	3,000	2,000	-	-	-	-	-	-	10,000
Ending cash balance	10,012	7,831	5,243	4,942	2,389	1,637	609	441	831	1,468	1,468

* Subject to rounding differences

The actual expenditure and cash outflow depend on the scale of the related facilities, and their business/operation mode upon discussion with experts in relevant fields. Note:

Enclosure 2 to FCR(2018-19)38

Proposed Cyberport Easy Landing Scheme

Objectives

To attract more multi-national corporations (including Mainland and overseas leading Internet enterprises) to set foot at Cyberport.

Programme Design

- Cyberport will offer eligible companies a rental subsidy. It is expected that the budget of \$50 million will serve a minimum of ten companies in five years.
- Cyberport hopes that the target companies will become flagship companies to further expand the international network of Cyberport and contribute to the development of the Cyberport ecosystem.

Target Companies

- Leading Mainland/overseas enterprises in ICT and Internet-related areas, including FinTech (e.g. on-line lending, insurance tech, and distributed ledger/blockchain and e-payment), e-commerce, game development, facial/voice recognition technologies, and data analytics/AI.
- Cyberport will promote the proposed Easy Landing Scheme against the latest I&T strategy including the latest national policies for opening up the Mainland's science and research funding to the higher education and research community in Hong Kong.

Major Terms and Conditions for Target Companies

- (a) *Rental Subsidy*: up to \$1 million or 50% of the total rent per annum, whichever is lesser, for a maximum of five years.
- (b) *Contributions required from Target Companies*: knowledge sharing (e.g. training and sharing of technology), provision of job and internship opportunities, participation in start-up clinic services, advice and support in market development and venture capital investment.
- (c) Annual review of the activities in (b) above by Cyberport.

Cash Flow Projection of the Hong Kong Cyberport Management Company Limited (in \$ million)

	<u>2018-19</u>	<u>2019-20</u>	<u>2020-21</u>	<u>2021-22</u>	<u>2022-23</u>	<u>2023-24</u>	<u>2024-25</u>	2025-26	<u>2026-27</u>	<u>2027-28</u>	<u>Total 2018-19 to 2027-28</u>
Opening cash balance	1,122	1,154	934	790	577	367	321	330	403	480	1,122
Net cash flow of Cyberport excluding the \$300 million Government injection	(196)	(166)	(98)	(160)	(156)	(36)	16	77	77	90	(552)
Available cash excluding the \$300 million Government injection	926	988	836	630	421	331	337	407	480	570	570
Cost for the promotion of e-sports development	(41)	(24)	(11)	(12)	(12)						(100)
Cost for supporting the development of the start-up ecosystem	(31)	(30)	(35)	(41)	(42)	(10)	(7)	(4)			(200)
Government injection for the promotion of e-sports development	100										100
Government injection for supporting the development of the start-up ecosystem	200										200
Ending cash balance	1,154	934	790	577	367	321	330	403	480	570	570

Enclosure 4 to FCR(2018-19)38