Information Session for
TSSSU 2022-2023
5 October 2021

Office of Research & Knowledge Transfer Services (ORKTS)
Venture Acceleration Team

For TSSSU Program
Mr. Jonathan Chee
Head of Venture Acceleration
Head of PI Centre
ORKTS

Ms. Wing Li
Assistant Manager of PI Centre
Venture Acceleration Team
ORKTS
TSSSU Funding

HKD8,000,000
Per Institution

HKD700,000
At Max. Per Year

3 Years
At Max.

Funded 62
TSSSU Companies
since 2014-15

TSSSU companies are not owned by CUHK but they facilitate the transfer of CUHK technologies into innovative applications for society.
Benefits for TSSSU

Consultancy & Mentorship
with our CUHK Entrepreneurship consultant

Training & Workshops
By industry experts & practitioners
Online and Offline Resources

Fast Track
To startup Incubators & funding preparation and Investors plus media strategy and exposure

Funding Support
Up to HKD700,000 per year with no more than 3 years

Coworking Space

Networking Opportunities
Successful Entrepreneurs, business partners & industry experts

Establish & Fostering CUHK Start-up Community

Talent Pool
TSSSU Companies funded in 2021-22

- Biotechnology/Health Care
  - Cornerstone Robotics
  - BETH Bioinformatics
  - G-NiB
  - MTCure Biotech
  - Hynovel
  - EggLogics
  - MicroMag
  - Tanogine H.K.
  - GoldenBiotech

- Adv. Manufacturing/Material Science
  - LaSense
  - 邁微思智造有限公司
  - Mechawaves Manufacturing
  - Luquos Energy
  - Hopebotics
  - APT

- FoodTech
  - mushroom-

- ICT/IT
  - TiFi
  - n-hop

- Sport Science
  - capmi tech
  - Loop Sports Technology Co., Ltd.
Person-in-Charge (PIC)

- Full-time Students (either UG or PG) or
- Full-time Professors or
- Alumni graduated within the last 36 months
- *the PIC cannot join concurrently other active teams funded by TSSSU*

Team Mix

- The number of team members including PIC of the Company must be at least two and can include alumni and non-CUHK individuals
- Research Staff, part-time student, non-CUHK individuals can be team members only
- Team members who are staff members and also alumni/students will be considered as staff members
Summary of Eligibility

Intellectual Property (IP)

• The technology involved in the application MUST be CUHK-related and with Intellectual Property (IP) owned by CUHK. If the technology has not yet filed IP under CUHK at the time of application, an Invention Disclosure Form or a Copyright Disclosure Form and Assignment must be submitted to ORKTS IP and Technology Licensing Team (Ms. Alison SIU at 3943 0635/alisonsiu@cuhk.edu.hk or Ms. Fei Fei MIU at 3943 9398/miufeifei@cuhk.edu.hk).

• IPs originated from CUHK students and/or professors are compulsory and owned by CUHK.

• Intellectual Property (IP): “INDICATE ONLY” the technology involved and IP ownership in Section A 4(d) of Annex A (the application form).

Technology Readiness Level (TRL)

• The technology involved in the application MUST reach the required TRL. Physical Science and Engineering technology MUST reach TRL 4 or above and HealthCare technology MUST reach TRL 3 or above.
Registration of a Company

• The applicant must be a company already registered under the Companies Ordinance for no more than 24 months before the date specified by ITC, i.e. 1 Feb 2022
  • Earliest registration date: 1 Feb 2020

• The 24-month eligibility requirement does not apply to a start-up which is recommended for the TSSSU funding for the second or the third year
Shareholder Structure

• Active members of CUHK (current full-time students, full-time professors, or alumni graduated within the last 36 months) should be the effective majority of shareholders, holding more than 50% of the shares of the Company.
Notes for Milestones and Budget

• Set out the milestones to be achieved from 1/4/2022 to 31/3/2023

• Budget in categories of Manpower, Equipment and Other Direct Costs has to be matched with the milestones

• Maximum allowable manpower remuneration for founding members
  • HK$12,000/month for a member without a Bachelor degree
  • HK$16,000/month for a member with a Bachelor degree
  • HK$22,000/month for a member with a Master degree or above

• Up to 50% of the Fund can be incurred in Mainland China and/or other countries
Endorsement (CUHK student or alumni PIC)

• CUHK-student PIC or alumni PIC should seek Departmental endorsement via Section E of Annex A
  • Copy of student ID card or graduation cert has to be provided for verification

SECTION E: Internal Signatures

For CUHK student/alumnus (PIC)

The PIC named ________________ is an undergraduate student/ postgraduate student/alumnus* of ________________ programme. The year of graduation will be/is* ____________.
Endorsement (CUHK staff)

- CUHK staff (PIC and team members individually) should seek Departmental & Faculty/Supervising Officer endorsement via the Appendix to Annex A
- Our HR colleagues will brief you more HR related information about Outside Practice (OP) and Outside Business Activities (OBA)
Technology Readiness Level, TSSSU Evaluation Criteria and Tips on Pitching
Introduction to Technology Readiness Level (TRL)

https://www.youtube.com/watch?v=in4TnQZGYj4
Technology Maturity (TRL) Assessment

1. Where is the beginning and end of the scale?
2. Are readiness level phases or milestones?
3. Identification of critical technology elements
   • The assessment focuses on each element individually
4. Categorization of each element into a TRL (1-9)
5. How do the maturity of system elements and the overall system relate?
# Technology Readiness Level (TRL) – Physical Sciences & Engineering

<table>
<thead>
<tr>
<th>Physical Sciences &amp; Engineering</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRL 1</strong></td>
<td>Basic principles observed</td>
</tr>
<tr>
<td><strong>TRL 2</strong></td>
<td>Technology concept formulated</td>
</tr>
<tr>
<td><strong>TRL 3</strong></td>
<td>Experimental proof of concept</td>
</tr>
<tr>
<td><strong>TRL 4</strong></td>
<td>Technology validated in lab</td>
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<tr>
<td><strong>TRL 5</strong></td>
<td>Technology validated in relevant environment</td>
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<tr>
<td><strong>TRL 6</strong></td>
<td>Technology demonstrated in relevant environment</td>
</tr>
<tr>
<td><strong>TRL 7</strong></td>
<td>System prototype demonstration in operation environment</td>
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<tr>
<td><strong>TRL 8</strong></td>
<td>System complete and qualified</td>
</tr>
<tr>
<td><strong>TRL 9</strong></td>
<td>Actual system proven in operational environment</td>
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## Technology Readiness Level (TRL) – Healthcare (Pharmaceutical/Drug Discovery)

<table>
<thead>
<tr>
<th>TRL</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Target Selection/ Hit Discovery</td>
</tr>
<tr>
<td>2</td>
<td>Lead Optimization</td>
</tr>
<tr>
<td>3</td>
<td>In Vitro Activity &amp; Toxicity/ In Vitro Pharmacokinetics</td>
</tr>
<tr>
<td>4</td>
<td>Animal Models Demonstrated in Defined Laboratory/ Animal Models</td>
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<tr>
<td>5</td>
<td>Clinical Transition (followed by IND application)</td>
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<tr>
<td></td>
<td>FDA/NMPA accredited Animal &amp; Chemical Development (Pre-IND work)</td>
</tr>
<tr>
<td>6</td>
<td>Phase 1 Clinical Trials</td>
</tr>
<tr>
<td>7</td>
<td>Phase 2 Clinical Trials</td>
</tr>
<tr>
<td>8</td>
<td>Phase 3 Clinical Trials</td>
</tr>
<tr>
<td>9</td>
<td>Pharmaceutical can be distributed or marketed (Approval by FDA/NMPA)</td>
</tr>
</tbody>
</table>
# Technology Readiness Level (TRL) – MedTech

<table>
<thead>
<tr>
<th>TRL</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Basic Principles Observed</td>
</tr>
<tr>
<td>2</td>
<td>Technology Concept Formulated</td>
</tr>
<tr>
<td>3</td>
<td>Experimental Proof of Concept in Vitro and in Vivo Research Models</td>
</tr>
<tr>
<td>4</td>
<td>Proof of Concept Demonstrated in Defined Laboratory/Animal Models</td>
</tr>
<tr>
<td>5</td>
<td>Product Development Plan</td>
</tr>
<tr>
<td>6</td>
<td>Phase 1 Clinical Trials</td>
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<tr>
<td>7</td>
<td>Clinical Safety and Effectiveness Trials in Operational Environment</td>
</tr>
<tr>
<td>8</td>
<td>Overall Risk-benefit Trials</td>
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<tr>
<td>9</td>
<td>Medical Device can be Distributed or Marketed</td>
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Evaluation Criteria

The Vetting Panel will take the following into account during assessment of applications.

1. Innovation and technology content of the business [40%]
   • Potential for knowledge transfer;
   • Intellectual property position, including patents, copyrights, trademark, know-how, etc.;
   • Stage of technology development and readiness for application (Technology Readiness Level);
   • Preference given to the innovation and technology that has synergy with CUHK Strategic Areas (i.e. China: Tradition & Modernity; Innovative Biomedicine; Information & Automation Technology; Environment & Sustainability)

2. Commercial viability of the business [30%]
   • Well-defined business and budget plan;
   • Well thought-out market analysis (e.g. opportunities, entry barriers, competitions, etc.);
   • Viable and realistic milestones and deliverables;
   • Whether the Start-up has secured other sources of funding apart from the TSSSU;

3. Team expertise and commitment [25%]
   • R&D and management capabilities of the team;
   • Drive and commitment of team members;
   • Incentive in equity for core team members;

4. The social and/or community impact of the start-up’s R&D project(s) [5%]
   • Products and services that improve the quality of human life;
   • Positive social impact to the society;
Tips on Pitching

1. **Problem** – What are the customers’ pain points?
2. **Solution** - What kind of product/service you provided to solve the pain points?
3. **Business model** – Who is your target customer and how do you make money?
4. **Marketing and sales** – What is your market segment? How to reach your customers?
5. **Competition** – How big is the market size? Who are the current players and potential new entrants? Any barriers to entry?
6. **Technology** – Why is it unique and sustainable? Any IP protection?
7. **Management team** – What are your team’s relevant expertise and experience at this stage?
8. **Financial projections** – How do you calculate the cost and the revenue?
9. **Milestones and timeline** – How to plan the achievements in different major phase of work?
Compulsory Training

To increase the understanding of the business, the first-time TSSSU applicants are required to attend at least one of the below trainings:

1) **Online training course ENTRE101 provided by CfE**
   ([https://course.keep.edu.hk/course/516298](https://course.keep.edu.hk/course/516298))

2) **Tips on Pitching in Info Session (5 Oct 2021, 3-4pm)**

3) **Craft & Deliver an Outstanding Pitch (7 Oct 2021, 6:30-8pm)**
   ([http://www.picentre.cuhk.edu.hk/events](http://www.picentre.cuhk.edu.hk/events))
Pre-application Meeting

Meeting with the Entrepreneurship Consultant & team

• To understand the Technology Readiness Level (TRL) of your research for commercialization
• To provide guidance for your business plan presentation to the TSSSU vetting panel if shortlisted for interview

Before the Meeting

• Prepare a 15-min presentation for your business plan based on the template
Pre-application Meeting

Scheduling of the Meeting (registration opens until 3 Nov)

On a first come first served basis

Meeting Timeslots
• 14 Oct 2021 (Thur) AM
• 21 Oct (Thur) PM
• 27 Oct 2021 (Wed) AM
• 2 Nov 2021 (Tue) PM
• 4 Nov 2021 (Thur) AM
Submission of Application

Application Documents

1. Application form (Annex A) (PIC and Team mix, share structure, declaration of IP, milestones, budget, endorsement, to be signed by PIC with a company chop)

2. Business Proposal

3. Copy of Certificate of Incorporation (CI) and Business Registration (BR)

4. CV of all team members (max. 4 pages each)

5. Agreement on royalties or IP rights with collaborating party (if any)

• The application form, with endorsement and supporting documents as listed in Section C of Annex A in hard copy, must be submitted in person to ORKTS at Unit 1A, 1/F, InnoPort, The Inter-University Hall by 5:00pm on Friday, 12 Nov 2021

• Online submission (compulsory) by 12 Nov 2021, 5PM:
**Important Dates**

1. **9 Sept 2021**
   Call for Applications

2. **12 Nov 2021**
   Application Deadline

3. **Late Nov 2020**
   Announcement of Shortlisted Applicants for interview

4. **8-10 Dec 2021**
   Interview by Vetting Panel

5. **Late Dec 2021 – Mid Jan 2022**
   Announcement of Results

6. **1 Apr 2022 – 31 Mar 2023**
   Funding Period (start date subject to receipt of ITC’s approval)
Venture Acceleration Team & PI Centre, Office of Research and Knowledge Transfer Services (ORTKS)

Ms. Wing Li
3943 9568/ wingli@cuhk.edu.hk
Feedback form

Please scan the QR Code on the left or enter the following link to complete the feedback form: https://cloud.itsc.cuhk.edu.hk/webform/view.php?id=13639686

The presentation slides will be sent to audience after the info session.

<table>
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<td>TSSSU application</td>
<td>Ms. Wing LI of ORKTS</td>
</tr>
<tr>
<td>OP &amp; OBA</td>
<td>Miss Kate LEUNG of HRO</td>
</tr>
</tbody>
</table>
Thank you for joining TSSSU 2022-23 Information session
Appendix
Technology Readiness Level (TRL) – Examples (Chemicals, etc)

- **Technology concept formulated, list of solutions, future R&D activities planned**
- **Documentation of experiment results, multiple process concepts evaluated**
- **Working pilot plant**
- **Finalized and qualified system and building plan**
- **Idea / rough concept / vision / strategy paper**
- **Proof of concept (in laboratory)**
- **Parameter and property data, few process concepts evaluated in detail**
- **Optimized pilot plant, working demo plant, sample production, qualified system**
- **Full-scale plant tested and working**


The Global CO₂ Initiative Series – Webinar on Technology Readiness Levels | Zimmermann, Moni, Langhorst et al. | May 12th 2021
Technology Readiness Level (TRL) – Examples for Chemicals, etc

TRL 3-5  TRL 6-7  TRL 8-9

Lab scale  Pilot Scale  Industrial Scale