IMMERSIVE TRAINING FOR HISTOTECHNOLOGISTS TO MASTER PROSECTION

CHALLENGE OWNER

This challenge is part of the **innovPlus Challenge 2024 Run 2**, organised by the Institute for Adult Learning's inlab. As part of the iN.LEARN 2.0 initiative, innovPlus facilitates the rapid development and pilot deployment of prototypes that can address learning challenges and exploit opportunities for better Learning and Development (L&D) and Continuing Education and Training (CET) outcomes, including design, delivery and assessment.

innovPlus is organised as a competition for training providers, organisations with L&D departments, learning experts, solutionists and technology partners to collaborate and present a holistic solution to real learning challenges faced by the training provider, organisation and/or groups of learners. Please refer to Annex A for more background on innovPlus.

The Challenge Owner is the largest public healthcare group in Singapore with a network of public and community hospitals, national specialty centres, and polyclinics offering over 40 clinical specialties to provide comprehensive, multidisciplinary and integrated healthcare. As an Academic Medical Centre, the Challenge Owner also converges clinical care, education and research to pursue innovations and deliver better, more accessible care to patients.

CONTEXT

CURRENT SITUATION

Histopathology is the study of diseased tissue at the microscopic level and involves examining tissue samples under a microscope to analyze the tissue's cellular structure and organisation in order to understand the nature and cause of disease for diagnosis of various medical conditions such as cancer, infection and inflammation. A required skillset for histopathology technologists ("histotechnologists[1]") is prosection, which is the process of careful and precise preparation of anatomical specimens to highlight specific structures, features or anatomical details. Prosection is a highly specialized skillset involving manual techniques and technical expertise to cut and handle the specimens correctly.

The histopathology lab in one of the Challenge Owner's hospitals is the collection and reception centre for patient specimens from both the hospital itself and other healthcare institutions such as other hospitals, clinics, laboratories and referring organizations throughout Singapore, and processes around 200 cases daily. The histotechnologists at the lab are responsible for carrying out prosection and laboratory tests on the specimens, and generating accurate and detailed description reports for pathologists[2] to use for diagnosis of diseases.

While histopathology is a key laboratory discipline, it is not covered extensively in the curriculum for life science courses offered by tertiary institutions, and there is no available academic training in prosection at all due to the lack of access to sufficient patient specimens for students to practice on. Hence, prosection training for histotechnologists is mainly conducted through on-the-job training.

[1] Histotechnologists are specialised medical lab workers in the allied health profession who play a crucial role in the diagnosis of diseases by preparing tissue samples for microscopic examination as part of the scientific investigation used to establish and confirm patient diagnoses.

[2] A pathologist is a medical doctor with specialised training to study fluids, tissues or organs taken from the body. Pathologists often work with a surgically removed sample of diseased tissue to detect anomalies and diagnose illnesses.

PAST AND CURRENT SOLUTIONING EFFORTS

To perform prosection, it is vital for histotechnologists to be familiar with the different physical appearances and pathological traits of various types of specimens. As part of the on-the-job training, trainees are required to master prosection of at least 34 types of specimens. The current training process for prosection requires a trainee to be paired with a trainer one-on-one for a minimum of two months at the prosection station of the lab, to complete a hardcopy checklist of structured training tasks which are in increasing order of difficulty. The training encompasses the following components:

- Observation by trainee. The trainer demonstrates how to perform prosection for a specimen, while the trainee observes.
- Hands-on practice and observation by trainer. The trainee performs prosection on a specimen under the trainer's observation. This process must be repeated three times for each type of specimen (i.e. trainees must perform prosection independently on three of the same type of specimen), for at least 30 specimens.
- Description of specimens by trainee. The trainee, guided by the trainer, will have to write a description of each specimen using a structured template that includes key sections and standardised language that acts as a guide for consistency.
- Assessment by trainer. The trainer assesses the various training tasks performed by the trainee and fills up a grade for each task in the checklist once the trainee is deemed competent to handle a particular specimen type independently. The trainee's supervisor will review the completed checklist and check in with the trainer and trainee before endorsing the checklist, which will then be filed in the trainee's personnel file. The trainee's level of competency will also be updated in the lab's internal system, Workforce Optimiser (WFO), which captures the competency level of each histotechnologist based on stars[3] so that they can be rostered appropriately.

After the training is completed, trained staff will have to undergo monthly competency assessments by pathologists one-on-one, where they are assessed on prosection of ten specimens. Trainees must also complete two competency assessments conducted by the prosection IC within a year of training completion, and one competency assessment per year thereafter.

CHALLENGE / GAP / UNREALISED POTENTIAL

The main challenges faced by the histopathology lab in training their histotechnologists are as follows:

- Limited access and inconsistent availability of diverse specimens. As training takes place using actual patient specimens which are part of the caseload of the lab, there is variability in the types of specimens that each trainee will be exposed to during their two-month training period, as these depend on the types of specimens that come through from the hospital's actual patients. Hence, trainees may not be exposed to all 34 types of specimens during their training period, in particular the rare specimens (11 out of 34), leaving them inexperienced in handling such specimens.
- Limited availability of experienced trainers. Trainers are generally senior practising histotechnologists who are experienced in prosection. However, due to staff turnover and the level of specialised experience needed by trainers, the lab currently has only one skilled trainer for prosection to a ratio of around 45 staff in the lab. The trainer would also be rotated to take on duties in other stations within the lab besides prosection for at least a month in between trainees, during which time training cannot take place for prosection. As each trainee is attached to the trainer on a one-to-one basis for two months, only around three

[3] Trainees begin with no stars and are raised to one star upon completion of training. More experienced histotechnologists are rated at two or three stars.

trainees can be trained per year in prosection, resulting in long wait periods for histotechnologists requiring training or refreshers in prosection.

- Differing abilities of trainers and trainees. Trainers may differ in knowledge, experience and capability, resulting in variability in their training (e.g. different levels of detail and use of vocabulary in their descriptions of specimens). Trainees also differ in learning ability, with some requiring more time to master prosection. However, due to the shortage of trainers, it is challenging to extend training beyond two months to support trainees who need more guidance. Inherent human bias in trainers may also contribute to variable training for trainees of differing ability (e.g. the trainer may teach more things to faster learners compared to slower learners).
- Lack of standardised training materials and database of specimens. Training materials (e.g. Powerpoint slides) are created by different trainers/staff, and hence are not standardised in terms of level of detail and description of specimens. In addition, textbook diagrams usually do not reflect an accurate depiction of specimens, and there is a lack of specimen photos available online for use in the materials.
- Lack of standardised rubrics for training and assessment. Despite the use of the checklist of training tasks, there are no fixed guidelines for how training should be conducted for knowledge transfer to trainees. Competency assessments also lack clear rubrics for determining satisfactory or unsatisfactory proficiency in prosection and can be highly subjective. While a variety of specimens are encouraged, there are no strict rules regarding the ten types of specimens selected for competency assessments by pathologists, which may not fully represent all the specimens that histotechnologists require competency in.
- Heavy workloads and rostering of staff to support training. During training for prosection, besides the trainer and trainee, one additional staff is required to be rostered at the prosection station to clear the actual cases coming into the station. This staff is required to have a competency level of at least two stars. However, due to the limited number of histotechnologists rated two stars and above, it is challenging to roster suitable staff at the prosection station to support training while still managing the caseload. With less experienced staff at the station, the trainer would have to focus on clearing the caseload instead of fully focusing on training or would have to also monitor the less experienced staff as well as the trainee.

Due to the above challenges, the current training in prosection is inconsistent in quality and learning outcomes, and trainees are not confident to handle rare or complex specimens even after completing their training. With a reliance on human trainers, training is also inefficient with only a small number of trainees being able to be trained each year, not scalable, and would be heavily impacted by staff turnover.

Hence, the Challenge Owner is looking for an immersive training solution for prosection that can provide trainees exposure to a comprehensive range of specimen types and accommodate different learning styles, while ensuring consistency in training quality, reducing reliance on human trainers, and increasing training efficiency and scalability.

CHALLENGE STATEMENT

How might we create an interactive, immersive and on-demand training solution to ensure consistency in training quality, and increase the competency and confidence of histotechnologists to perform prosection on a comprehensive range of patient specimens and generate accurate description reports for diagnosis?

WHAT ARE WE LOOKING FOR?

The Challenge Owner is looking for an interactive training solution to enhance their existing training programme in prosection, and act as a form of pre-training for trainee histotechnologists before they train with real patient specimens. The solution should function as a self-directed learning tool that allows trainees to build up exposure to and knowledge of a wide range of specimen types, especially rare specimens.

The solution should meet the following criteria:

- Immersive simulation-based practice. Able to simulate real specimen handling that provides an experiential learning and practice experience for trainees in prosection, as well as writing description reports about the specimens.
- Expandable digital database of specimen types. Develop a digital library with definitions, descriptions and images of diverse specimen types and medical conditions as training content, and allow trainers/supervisors to self-serve for continual updating and adding on of specimens/medical conditions.
- Modular content with differing difficulty levels. Training content should be modular and have different difficulty levels based on the type and complexity of specimens and medical conditions.
- Personalised self-directed learning. Allow trainees to choose which modules and difficulty levels to practise based on the specimen types/medical conditions they would like to focus on for self-directed learning, providing adaptive learning pathways that can be personalised to their individual training needs, learning style and pace.
- Competency assessment and reporting. Able to capture data on training progress by trainees, assess their performance for simulation attempts and modules, and generate reports with insights for trainers'/supervisors' review that can be exported for attachment to the trainees' training records.
- Prompts and feedback. Allow trainers/supervisors to provide guidance and feedback to trainees on their performance for their future improvement. Provide prompts and feedback to trainees during simulations (e.g. when they have missed details, made mistakes, or paused for a long time) to facilitate better self-directed learning.
- Dashboard. Provide a dashboard that allows trainers/supervisors a consolidated overview of all trainees' training progress and competency assessment results for tracking and monitoring.

OVERALL PERFORMANCE REQUIREMENTS

- Scalable. The solution should be scalable to accommodate a growing number of trainees, while maintaining a consistent and high-quality learning experience.
- User-friendly and accessible. The solution should be easy to use, to be accessible to a diverse range of users and motivate learners to be self-directed.
- On-demand and portable. The solution should allow training to be available anytime, anywhere on demand, ideally without any physical setup required. Any physical setup required should be portable and easy to administer.
- Web- and mobile-friendly. The solution should be able to be accessed on desktop and mobile devices where possible. It should be internet-based at prototype stage, with potential future integration to the Challenge Owner's corporate network for further deployment. No integration is required to the lab's WFO system.
- Secure and PDPA-compliant. As the solution will contain proprietary training materials, it should be secure and access should be strictly limited to registered users.
- Ethical. The solution must adhere to the healthcare ethics guidelines set by MOH.

TARGETED LEARNERS /USERS

Primary and Secondary targeted learners / users of the envisaged solution (including estimated numerical figures)

- Estimated primary users of 45 – 65 trainee histotechnologists each year, comprising new joiners, junior histotechnologists, and practicing histotechnologists who require refresher training in prosection
- Potential secondary users include around 50 – 100 histotechnologists under all public health institutions and private sector, and students in Institutes of Higher Learning

Prospective Solution Partners who choose to apply for this challenge must be registered and operating in Singapore. The prototype needs to be demonstrated in Singapore. The Solution Partner should allow the solution to be tested for at least 9 months with at least 40 users before further refinement and deployment.

MEASURES OF SUCCESS

- Increased training capacity. The number of histotechnologists trained in prosection should increase from the current three trainees per year to at least 30 – 40 trainees per year.
- Increased access to variety of specimens. The number of specimen types that trainees are exposed to should increase by at least 32.3% (11 out of 34 specimens), measured by the inclusion of new specimen types in the solution's digital database.
- Enhanced knowledge and competency levels. Trainees should demonstrate improved competency in prosection and writing of accurate description reports, and enhanced knowledge of a wide variety of specimen types over time, evaluated through trainers' assessments.
- Enhanced confidence levels. Trainees should demonstrate an increased level of confidence in prosection by at least 30% on a 5-point scale, as measured through pre- and post-training surveys.

POSSIBLE USE CASES

1. Immersive simulated training. Zach is a junior histotechnologist who is about to begin his training in prosection. Before undergoing the on-the-job training with his assigned trainer, he uses the solution's digital database to familiarise himself with the various specimen types, including rare ones which are seldom encountered in the lab. After logging into the solution, he has the option to choose modules containing simulation cases of varying difficulty, and flexibility to access the modules at his own pace and convenience. In the simulation environment, he can engage in a realistic practice session of performing a prosection on a specimen and writing a detailed description report of the specimen. While performing the simulation, the solution prompts him with some tips on the next steps for the prosection, as well as phrases and vocabulary to improve his description report. Following the completion of each module, a performance report is generated, which highlights areas for improvement and the accuracy of the description report. After using the solution, Zach is able to hone his prosection skills and build up his knowledge of different specimen types, which enhance his hands-on learning experience with his trainer.

2. Increased training efficiency and effectiveness. Mary, a trainer in prosection, accesses the dashboard of the solution to review the reports of her trainees' performance. With the insights from the reports, she gains visibility into each trainee's competency levels and knowledge gaps, and is also able to identify the weaker trainees who require more guidance. She is able to upload new specimen types with images and descriptions into the solution's digital database for her trainees to build up their knowledge. During the actual on-the-job training, she is able to direct her efforts towards targeted guidance to each trainee for better training effectiveness.

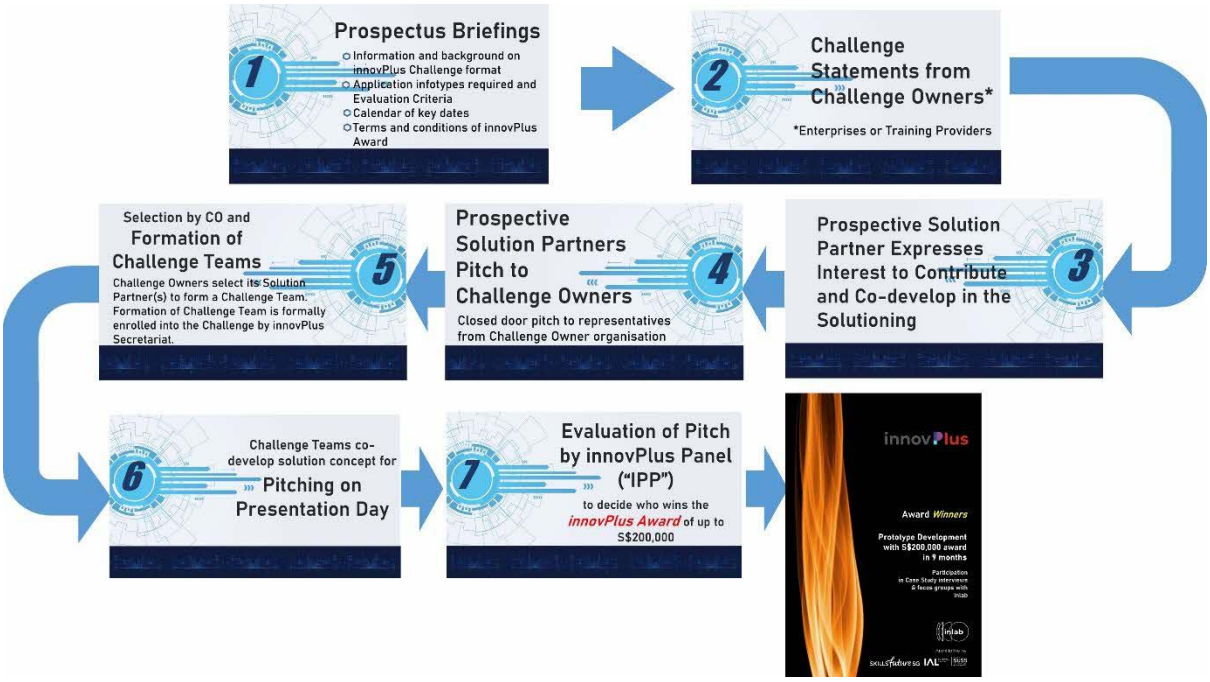
WHAT IS IN IT FOR YOU?

- Up to S$200,000 of prototyping grant (innovPlus Grant) for each winning Challenge Team of the innovPlus Challenge 2024 Run 2 (see Award Model) to develop and trial an innovative, feasible and scalable prototype that advances CET practice and learning outcomes
- Access to IMDA'S PIXEL corporate innovation hub and complimentary innovation consultancies (e.g. Design Thinking, Digital Storytelling) for prototype development, where applicable.
- Co-innovate with the Challenge Owner with access to their expertise, facilities, and human resources in developing the solution, and potential to scale the successful solution for commercialisation.

INNOVPLUS COMPETITION PHASE PROCESS FLOW

Diagram 1 illustrates the innovPlus process flow in the competition phase and the requirements for active involvement of each party. Stage 3 indicates the current stage of the competition, where Prospective Solution Partners are to express interest to contribute and co-develop solutions with the Challenge Owner through IMDA's Open Innovation Platform.

Diagram 1 - innovPlus Competition Phase Process Flow



The Challenge Owner will evaluate all proposals by Prospective Solution Partners received on the OIP based on the evaluation criteria below, and invite shortlisted partners to a second stage evaluation in the form of a pitch (Stage 4 of Diagram 1).

Solution Fit (30%)	Relevance: To what extent does the proposed solution address the problem statement effectively?
Solution Readiness (20%)	Maturity: How ready is the proposed solution to go to the market? Scalability: Is there any evidence to suggest capacity to scale? Does the proposed solution offer potential to also help other enterprises facing similar challenges (i.e. broader application, adaptation and transferability)?

Solution Advantage (30%)	Pedagogical Design: What sound pedagogical design approaches underpin the proposed solution to enhance effectiveness of learning or desired learning outcomes? Cost Effectiveness and Innovativeness: Is the solution cost effective and truly innovative? Does it make use of new technologies in the market, and can it potentially generate new IP? How sustainable and affordable is the estimated cost for pilot trial, deployment, software support and post-pilot rollout?
Company Profile (20%)	Business Traction: Does the product have user and revenue traction? Is the company able to demonstrate financial capability and resources to complete the prototype? Team Experience: Do the team members possess strong pedagogy and scientific/technical background?

Thereafter, the Challenge Owner will decide on the Solution Partner to form a Challenge Team to co-develop the idea into a potential solution (Stage 5 in Diagram 1). The Challenge Team will pitch their solution in the final round of the competition, known as the innovPlus Presentation Day. On that day, the Challenge Teams will present how the envisaged solution could deliver the stated learning outcomes with a presentation and demonstration to the innovPlus Panel (Stage 6 in Diagram 1). The innovPlus Panel shall have the final decision on whom the eventual Grant awardees shall be (Stage 7 in Diagram 1). Please refer to the Terms and Conditions in Annex B for further details.

AWARD MODEL

Up to S$200,000 of prototyping grant (innovPlus Grant) will be awarded to each winning Challenge Team of the innovPlus Challenge 2024 Run 2 for the development and pilot deployment of a prototype solution. The grant will NOT be inclusive of any applicable taxes and duties that any of the parties may incur. Guidelines on the grant disbursement quantum, milestones, timeline and supported cost items are stated in the Terms and Conditions under Annex B.

*Note that a finalist (prospective Solution Partner) who is selected to undertake the prototype will be required to enter into an agreement with Challenge Owner(s) that will include more detailed conditions pertaining to the POC/prototype.

SUBMISSION GUIDELINES AND DEADLINE

The proposal **must** include the following:

- Completed and countersigned innovPlus Expression of Interest (“EOI”) Form
- 1 deck of slides in PDF format explaining the proposed solution, how it addresses the challenge statement and meets the desired performance requirements. To include information such as the proposed data inputs, system that the proposed solution will run on, potential benefits, the envisaged learning innovation, and the team’s implementation plan
- Video or pictures (300dpi) of any prototype or simulation, if applicable
- ACRA Business Profile (2024 or most recent) with certificate confirming registration of business
- Corporate Compliance and Financial Profile from BizFile (2024 or most recent)
- Track record of the company (including financial capability to complete the project) / CV of the team

All submissions must be made by **15 November 2024, 1600 hours (SGT/GMT +8)**. inlab and IMDA may extend the deadline of the submission at their discretion. Late submissions on the OIP, or submissions via GeBIZ, will not be considered.

Annex A – About innovPlus

1. iN.LEARN 2.0 is an initiative launched by SkillsFuture Singapore to drive innovation in the Training and Adult Education ("TAE") sector from ideation to commercialisation through its three key programmes – the innovPlus, innovSpur and Sandbox. It will focus on four key areas:

   i. increasing the uptake of online and blended learning by individuals;
   ii. amplifying enterprises' adoption of innovative learning technology;
   iii. developing effective remote assessment and proctoring solutions for individual and enterprise-led training; and
   iv. developing effective placement solutions that tighten the industry-training nexus.

2. As part of iN.LEARN 2.0, innovPlus contributes to the initiative by facilitating the rapid development and pilot deployment of prototypes that can address learning challenges and exploit opportunities for better Learning and Development ("L&D") and Continuing Education and Training ("CET") outcomes, including design, delivery and assessment. It is organised as a competition for training providers, organisations with Learning and Development ("L&D") departments, learning experts, solutionists and technology partners to collaborate and present a holistic solution to real learning challenges faced by the training provider, organisation and/or groups of learners. innovPlus could cover any/all of the following areas of innovation:

   - Pedagogy / Learning Design and Delivery
   - Learning technology
   - Training management
   - Application of skills and workplace performance
   - Assessment and credentialing
   - Remote assessment and proctoring
   - Hybrid Mode
   - Adaptive Learning
   - Blended Learning
   - Workplace Learning

3. innovPlus comprises three rounds of evaluation:

   i. inlab of Institute for Adult Learning (IAL) will assess if the stated Challenge Statement meets the eligibility criteria and competition guidelines stated in the Terms and Conditions under Annex B.
   ii. Participating organisations as Challenge Owners ("CO"), who are seeking solutions to their learning challenges, will hear pitches from prospective Solution Partners ("SP") on how their challenges can be overcome and select the partners whose ideas they assess to best meet their needs. The Challenge Owners and their selected Solution Partner(s) will then form a Challenge Team ("CT") to co-develop the ideas into a potential solution.
   iii. The Challenge Teams pitch their solutions in the final round of the competition, known as the innovPlus Presentation Day. On that day, the teams will present how the envisaged solution could deliver the stated learning outcomes with a presentation and demonstration to the innovPlus Panel ("IPP").

4. innovPlus is conducted once every six months. Prototyping grants, each up to **S$200,000**, could be awarded to the winning concepts to develop a prototype[4] for pilot testing with actual learners/users[5] within a maximum duration of 9 months[6].

[4] A *prototype* is defined as an original and novel model, form or solution, with its primary utility being to advance more effective learning. The key operators in this definition, 'original', 'novel', and 'more effective learning', must be clearly conveyable and verifiable.

[5] *Actual learners/users* is defined as the persons who will benefit from resolving the learning challenge, who you can commit to (primary target), e.g. within your organisation. Pilot testing shall encompass minimally 30% of the targeted primary learner/user population, which cannot be less than 15 users per pilot run.

[6] 6 months to complete a workable Proof of Concept with User Acceptance Test, and an additional 3 months to show scaling up of prototype (where applicable) and usability to minimally 30% of **primary** targeted learner/user population, which cannot be less than 15 users per pilot run.

Annex B – innovPlus Challenge and Award Official Terms and Conditions

As part of participating in innovPlus and submitting the innovPlus application form, all participating organisations and individuals agree to accept the following terms and conditions governing the innovPlus Challenge (and all its associated processes) and the innovPlus Grant offer (if applicable):

DESCRIPTION OF THE GRANT

1. The innovPlus Challenge ("innovPlus") is a competitive learning innovation grant challenge that awards a prototyping grant of up to S$200,000 to winning organisations to develop and trial an innovative, feasible and scalable prototype that advances CET practice and learning outcomes. The innovPlus Challenge is organised by inlab of the Institute for Adult Learning ("IAL"). Winning submissions will be as determined by the innovPlus Panel ("IPP") (defined below) in accordance with the prevailing Evaluation Criteria and Terms and Conditions as administered by the innovPlus Secretariat. The innovPlus Grant is funded by SkillsFuture Singapore ("SSG") and is administered by SUSS-IAL, by appointment of SSG. IAL is an autonomous institute of Singapore University of Social Sciences ("SUSS").

ELIGIBILITY

2. The innovPlus Challenge is open to organisations that are a registered business entity in Singapore (a valid ACRA or UEN identifier will be required for application), to participate as prospective Challenge Owners. Government Agencies and Statutory Boards are not eligible to participate[7]. Prospective Challenge Owners will be subjected to financial assessments. Only Singapore-registered business entities may apply to participate as a prospective Solution Partner.

3. Challenge Owner organisation and its choice of Solution Partner(s) shall form a Challenge Team.

4. Challenge Owner organisation[8] can be granted the innovPlus Grant for up to a maximum of two grants at any time within three years from date of the first award. The clock will reset after sitting out of two innovPlus Challenge runs.

5. Solution Partner organisation can be granted the innovPlus Grant for up to a maximum of three grants at any time within three years from date of first award. The clock will reset after sitting out of two innovPlus Challenge runs. Additionally, each Solution Partner is allowed to enrol in a maximum of two Challenge Teams in each eligible run.

HOW TO PARTICIPATE

6. To participate in the innovPlus Challenge/, applicants may apply as either a Challenge Owner or as a Solution Partner. Application must be made using only the following official innovPlus application forms:

[7] Govt Agencies list: gov.sg | Ministries (sgdi.gov.sg)

Statutory Board list: gov.sg | Statutory Boards (sgdi.gov.sg)

[8] Second Grant Award must be to another Department/Division/Business Unit of the awarded organisation.

a. innovPlus Challenge Statement Application Form (for prospective Challenge Owner);

b. innovPlus Expression of Interest ("EOI") Form (for prospective Solution Partner, with respect to the specific Challenge Statement published);

c. Part 1 of innovPlus Challenge Team Formation Submission Form (for enrolment of team formation);

d. All parts of innovPlus Challenge Team Formation Submission Form; and

e. Projected budget and project schedule using prescribed innovPlus templates.

Only application forms downloaded from the official innovPlus webpage on SUSS-IAL's website will be accepted into the innovPlus Challenge. Completed forms must be submitted by email to the innovPlus Secretariat and inlab at the email addresses specified in the header section of all application forms. Only fully completed application forms received by the stipulated respective deadlines for each stage of the innovPlus Challenge will be considered for acceptance and enrolment into the innovPlus Challenge.

A submission may, in Secretariat's sole and absolute discretion, be rejected if it fails to follow the technical, creative, and legal requirements specified on the innovPlus webpage, the official innovPlus Infokit and in these Official Terms and Conditions. Applications that do not follow all of the instructions, provide the required information in their application form, or abide by these Official Terms and Conditions or other instructions of Secretariat may be disqualified at Secretariat's sole and absolute discretion. All entries that are late, illegible, incomplete, damaged, destroyed, forged or otherwise not in compliance with the Official Terms and Conditions may be disqualified from the innovPlus at Secretariat's sole and absolute discretion. Applications generated by script, macro or other automated means and entries by any means which subvert the entry process are void. All entries become the physical property of SUSS-IAL and Secretariat and will not be acknowledged or returned. Assurance of delivery of entries is the sole responsibility of the Applicant.

Additionally, applicants shall attend the activities organised by the innovPlus Secretariat to improve the capability of the Challenge Teams in identifying the root cause to their challenge and developing the appropriate solutioning. These include the innovPlus Prospectus Briefing, workshops and coaching sessions, and any other sessions deemed relevant to innovPlus participation. Failure to do so could lead to disqualification from the competition.

SUBMISSION GUIDELINES

7. Submission for evaluation by IPP pursuant to the award of the innovPlus Grant, will be in the following three parts:

   a. Paper submission via the official innovPlus Challenge Team Formation Submission Form and the projected budget and project schedule, by the stipulated deadline, of no less than 21 calendar days before Presentation Day. The paper submission is to be in English. The paper submission must answer the prompting guides as set out in the innovPlus Challenge Team Formation Submission Form;

   b. Presentation and demonstration of any concept mockup/wireframe (where applicable), in English, by (up to) five members of the Challenge Team to the IPP on Presentation Day (as informed by Secretariat) of no more than 15 minutes. This will be followed by engagement with

IPP for up to 15 minutes. The session will be conducted in closed-door to only the IPP in the Pitching Room.

The Challenge Team must have all rights, clearances, permissions, approvals and/or consents necessary for their Submission, including, but not limited to, music rights, releases from all persons listed in the submission, location releases for all recognisable locations, and releases from all and any person who participated in the production of the Submission. In the event that the Challenge Team does not have the appropriate rights, the Submission may be disqualified at the Secretariat's sole discretion. SUSS-IAL reserves the right to disqualify any entries if it views their materials to contain contents (e.g. text, sound or images) that in SUSS-IAL's opinion to be offensive, inappropriate, or that will cast innovPlus, Innovation Centre, SUSS-IAL or SUSS in a negative light.

The above specified three parts shall collectively form the Submission of each enrolled Challenge Team, and shall be the basis by which each Challenge Team is evaluated for the Grant. Challenge Teams awarded the Grant, shall be held accountable to the Submission, and be funded to deliver, complete or report on all parts of this Submission, to qualify for a claim on the Grant. Should the Challenge Team be unable to deliver on the Submission, the Team agrees for SUSS, acting through SUSS-IAL, to recover any grant already disbursed, and any liquidated damages resulting from the disbursement, so decided at the absolute discretion of SUSS-IAL.

EVALUATION OF SUBMISSIONS

8. On Presentation Day, all Submissions will be evaluated by the innovPlus Panel ("IPP"), which consists of a panel of institutional/industry/pedagogy experts based on the following evaluation criteria:

   a. Concept

      - Provide grounds to justify why the challenge should be addressed or taken on and how the proposed solution addresses the challenge / opens up opportunity for better quality CET outcomes and delivery; and
      - Extent objectives, goals and desired outcomes can be achieved.

   b. Innovation

      - Extent proposed innovation goes beyond known / existing solutions with (a) clear innovative value and (b) absolute valued added;
      - Potential for spin-offs to be generated from the proposed innovation e.g. in user / learning experiences for other CET professionals, learners and/or organisations; and
      - Evidence of sound pedagogical design underpinning the proposed solution to enhance effectiveness of learning or desired learning outcomes.

   c. Impact and Scalability

      - Demonstrates feasibility of implementation organisation-wide, sector-wide or sizeable segments of the workforce. Solutions includes an evaluation process, success indicators and impact measurement; and
      - Offers potential to also help other enterprises facing similar challenges (i.e. broader application, adaptation and transferability)

   d. Project and Implementation Team

- Team consists of members from different disciplines
- Has a credible and realistic plan, budget and schedule to complete project in specified duration (maximum of 9 months)
- Has a clear identification of all stakeholders involved in the project, with the relevant and necessary competencies and track records to ensure successful project delivery
- Demonstrates commitment to develop the prototype as envisioned. Presence of a dedicated project manager to oversee implementation and manage the project, including progress reporting, budget management, resource management, etc

e. Implementation Sustainability

- Extent of thinking and/or planning for roll-out of solution to rest of organisation, including possible costs and resources required
- Indication of project team's continued involvement in the roll-out plan

9. IPP shall have the final decision on whom the eventual Grant awardees shall be. The IPP may declare void any entry should they consider that there are no entries reaching the required standard, whereupon they can award prizes or not as they deem fit. No correspondence will be entered into or comment issued on any matters concerning the evaluation of entries, and no reasons be given for any decision made by the IPP.

10. Awards conferred are not transferable under any circumstances. In the event a winning team is unable and/or unwilling to accept the award or withdraw for whatever reason, SUSS-IAL reserves the right to award it to the next highest scoring team that meets the qualifying criteria.

QUANTUM AND ADMINISTRATION OF THE GRANT

11. Winners of the innovPlus Challenge shall qualify to draw down on a pre-approved innovPlus Grant ("Grant") of up to S$200,000, with a mandatory co-contribution of at least 10% of total prototype development cost, which can be in monetary form or in-kind[9].

12. The maximum grant amount of each award shall be exercised through a Letter of Award ("LOA") between Singapore University of Social Sciences ("SUSS") and the Challenge Owner organisation. Secretariat will consult the winning Challenge Team in working out and finalising the maximum grant amount and detailed budget for approval by SUSS-IAL, to constitute the LOA.

13. The Grant shall be disbursed in 4 tranches, strictly adhering to the stipulated milestone and timeline in the table below:

Tranche & Grant Quantum	Milestone	Milestone Timeline	Typical Grant amount

[9] To be supported with evidence for actual hourly rate charged (either with the payslip or a salary statement from HR)

1st: 30% of maximum grant amount	Effect of LOA by signature of SUSS-IAL and Challenge Owner organisation	Start of prototype development	up to S$60,000
2nd: 20% of maximum grant amount	Mid-Term Progress Report, Presentation and required claim documents	3 months after start of prototype development	up to S$40,000
3rd: 20% of maximum grant amount	1st part of Final Summative Report, Prototype completion, Presentation and required claim documents	Not more than 6 months after start of prototype development	up to S$40,000
4th: 30% of maximum grant amount	2nd part of Final Summative Report, Pilot completion and Evaluation, Final Presentation and required claim documents	6 to 9 months after start of prototype development	up to S$60,000

Besides the first advance disbursement of 30%, subsequent funds will only be reimbursed on the submission and approval of the required reports and expenses incurred according to the approved budget. Proof of payment needs to be furnished before the claim can be approved.

CONDITIONS AND REQUIREMENTS OF AWARDED CHALLENGE TEAM AND PROTOTYPE

14. The innovPlus Grant is awarded on the basis of the presented prototype solution (and its proposed functionalities, features, capabilities, outputs and deliverables) and the envisioned scalability and roll out of the prototype to its intended users. As the implementation team as submitted in the application is evaluated as a criterion, any change to the composition of the Challenge Team after award of Grant must be submitted in writing, through Secretariat, for SUSS-IAL's prior approval. Failure to do so could lead to automatic disqualification.

15. The awardees of the innovPlus Grant accepts the grant by signing a Letter of Award ("LOA") within 8 weeks from Presentation Day, comprising the terms and conditions governing the grant, including piloting the prototype with learners, submitting a pre- and post-evaluation report of the prototype's strengths and weaknesses and conferring non-exclusive, irrevocable, free right and license to the use of the prototype and all intellectual property and information generated resulting from the performance of the Project to SUSS-IAL for non-commercial, academic, research and development purposes, including, but not limited to, the purposes of proliferating the knowledge gained therefrom to the training and adult education (TAE) community. For the avoidance of doubt, the terms of the National IP Protocol[4] shall apply. For the avoidance of any doubt, the terms and conditions in the LOA are strictly non-negotiable.

16. In general, the prototype development grant offered in the innovPlus Grant will support the following cost items:
    - Fees of expert services from entities (organisation or individual) outside the composition of the Challenge Team, that are required in the areas of technical and development work, or for purposes such as research or advice, shall be limited to a cap of 10% of the approved grant amount;
    - Professional services as charged to the Challenge Owner organisation by the Solution Partner(s) of the Challenge Team;
    - Supplies that are necessary for the overall operation, development and pilot of the awarded solution;
    - Equipment that have direct contribution to the overall operation, development and pilot of the awarded solution;
    - Software and / or other licensing that are essential for the project and for the duration of the project; and
    - Others – items not in the above list but necessary for the conduct and successful delivery of the project could be included in the funding request, subject to the approval of SUSS-IAL.
17. The grant will not support cost items that do not contribute directly to prototype development such as marketing, networking and publicity. It will also not support capital equipment not essential to the project, maintenance cost for software licensing, GST, and travel (local and overseas).
18. The Challenge Team is required to prove cost transparency and reasonableness on request by SUSS-IAL on all cost items it is claiming for funding.
19. No claims can be made on any items that are not in the budget submitted together with the proposal made in the Challenge Team Formation form.
20. SUSS-IAL shall not be under any obligation to make any payment to the Challenge Team on claims of:
    - unsupported cost items listed in the approved budget;
    - qualified expenses but which no adequate proof of expenditure and proof of payments has been furnished;
    - qualified manpower costs but which no adequate proof of cost reasonableness provided upon request;
    - any amount that exceeds the cost items listed in the approved budget; or
    - any amount that is based on expenditure / payment not in compliance with prevailing procurement practices in terms of not being value for money.

21. The Challenge Team shall be solely responsible for its own partnership management and team work, including Intellectual Property ("IP") arrangements and development / implementation plan.

22. The Challenge Team shall undertake that it will not infringe the intellectual property rights or any other rights of any person, and will comply with all applicable laws at all times.

23. The winning Challenge Team shall grant consent to SUSS-IAL disclosing, in such manner as SUSS-IAL deems appropriate, in its (SUSS-IAL's) publicity materials of the team's participation, and setting out and publishing in its publicity materials, in such manner as SUSS-IAL deems appropriate, information regarding the participation, including:

    a. the materials submitted for the innovPlus Challenge and any other information pertaining to its proposal;

    b. the contents of the findings or results, report(s) or any part thereof the awarded project; and

    c. information arising from or pertaining to the reports or any presentation, seminar, conference, or symposium conducted by the team.

24. The Challenge Team agrees to indemnify and hold harmless SUSS-IAL against any and all actions, claims, demands, and proceedings in any way arising out of or connected with SUSS-IAL's use, reproduction, publication or dissemination in the manner mentioned above, and all costs, expenses, losses and liabilities, howsoever arising.

25. The Challenge Team shall ensure that all information about the team or proposal provided to SUSS-IAL pursuant to its participation and for the subsequent purposes of or connected with making claims, are true, accurate and complete to the best of the team's knowledge. In the event that it comes to the knowledge of the team that any information already provided is or has become inaccurate, untrue, incomplete or misleading, the team shall immediately notify SUSS-IAL of such inaccuracy, incompleteness, misleading nature, or untruthfulness, and provide such information in connection therewith as SUSS-IAL may request.

26. The innovPlus Grant will be withdrawn if:

    a. the Challenge Team is unable to perform the obligations set out in the LOA; or

    b. the Challenge Team commits a breach of any of the provisions of the LOA.

SHOWCASING OF INNOVATION DEVELOPMENT

27. The Challenge Team shall undertake to collaborate with SUSS-IAL in the development of case studies and/or research papers detailing the experience and insights gleaned from the prototype development and any trialing/pilot that ensued. No confidential or private information will be revealed through this effort.

28. The Challenge Team shall undertake to allow SUSS-IAL to disseminate the case studies and/or research papers in various formats including printed materials, online articles, video, audio, and

other digital recordings to any individuals or organisations that it deems will benefit from the learning and sharing; and

29. The Challenge Team shall undertake to agree for SUSS-IAL to profile the companies and individuals involved, as well as the solution and/or prototype on the following platforms:

    a. SUSS-IAL professional development seminars and workshops;

    b. SUSS-IAL partner showcase for a period of 12 months;

    c. SUSS-IAL conferences and events, e.g. the Adult Learning Symposium and Learning Roadshows; and

    d. Conferences and events SUSS-IAL is participating in and where the themes / areas covered are aligned and of interest to the participants.

30. The full and prevailing terms and conditions of the innovPlus Challenge and innovPlus Grant can be found in the Challenge Statement application form, Expression of Interest and Challenge Team Formation submission form, and all applications submitted to the Challenge will be deemed to have accepted these terms and conditions.

31. SECRETARIAT of the innovPlus Challenge and innovPlus Grant is the inlab, acting on behalf of the Institute for Adult Learning ("IAL"), of 11 Eunos Road 8, #05-03, Singapore 408601, wherein IAL is an autonomous institute of the Singapore University of Social Sciences.

GENERAL

32. Depending on the prevailing implementation challenges and needs, innovPlus Secretariat reserves the right to amend and change the terms and conditions with approval from the Director of Innovation Centre, that complies with the intent and spirit of innovPlus.

33. SUSS-IAL reserves the right to disqualify any participant at any point in time during the innovPlus Challenge.

SUSS-IAL reserves the right to change these terms and conditions at any time without prior notice. In the event that any changes are made, the revised terms and conditions shall be posted on the innovPlus website immediately. Please check the latest information posted herein to inform yourself of any changes.