SIMULATION-BASED TRAINING SOLUTION TO ENHANCE OPERATION AND MAINTENANCE OF SILTY WATER TREATMENT PLANTS

CHALLENGE OWNER

This challenge is part of the **innovPlus Challenge 2025 Run 1 – Pathway 1**, 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.

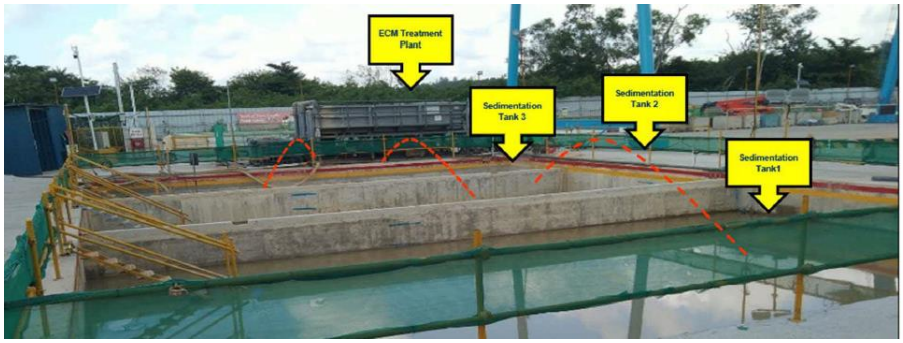
The Challenge Owner is a premier continuing education centre dedicated to advancing engineering knowledge, training needs and professional competencies of the engineering community. The Academy trains 7,000 to 8,000 participants annually across various engineering disciplines and manages national registries including the two critical national registries: the Qualified Erosion Control Professionals (QECPs) and Earth Control Measures Officers (ECMOs). These roles are instrumental in ensuring environmental compliance at construction sites, particularly in managing silty water discharges into waterways. The Academy's direct involvement in educating and certifying these professionals places it in a unique position to design training programmes that reflect real industry challenges and regulatory requirements. As an ISO 29993-accredited institution, the Academy collaborates with government agencies, industry leaders, and educational institutions to ensure its training remains aligned with national workforce and infrastructure goals.

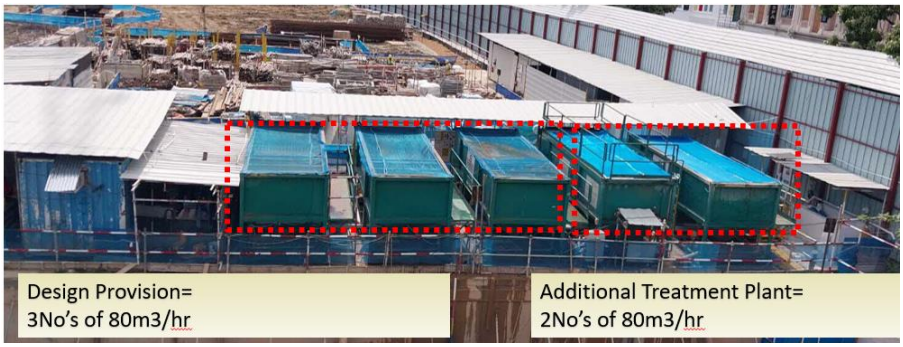
CONTEXT

CURRENT SITUATION

Silty Water Treatment Plants (SWTPs) are essential on construction sites (see Figure 1) to ensure silty water generated from earthworks is treated to meet regulatory standards before discharge into public drains. ECMOs stationed onsite are responsible for managing the operations and maintenance of these systems. To support their training, the Academy currently provides small-scale SWTP models at its premises. This setup offers foundational hands-on exposure. However, several limitations hinder its effectiveness in fully preparing the ECMOs for real-world challenges. The training at the Academy is limited by external factors such as weather, safety concerns, dated equipment, and a lack of opportunities for real-time troubleshooting. As a result, ECMOs face inconsistent learning outcomes and remain reliant on SWTP suppliers for ongoing technical support.

Figure 1: Sample images of SWTPs at construction sites





While the Academy offers a Certificate of Competency in Earth Control Measures for construction site personnel, supplemented by a short course on SWTP operations involving real chemical and membrane systems, the training remains narrow in scope. The current training lacks exposure to a broad range of realistic operational scenarios and in-depth troubleshooting practice. In addition, the informal and inconsistent supplier-led training undermines skill development, limiting ECMOs' confidence and independence in managing SWTP operations across diverse construction environments. To gain a better understanding of the setup and operation of an actual SWTP at a construction site, please view the video here.

PAST AND CURRENT SOLUTIONING EFFORTS

As of May 2025, the Academy has conducted seven runs of the current SWTP training course, each accommodating 10 to 20 participants. The program consists of theoretical and practical components delivered through classroom instruction and physical demonstration using on-site chemical and membrane SWTPs. The course is not yet mandatory and typically participants attend the course only after issues are encountered on-site.

Due to time and safety constraints, practical training is currently limited to only two or three selected troubleshooting scenarios, conducted in group settings that reduce individual hands-on exposure. Full plant functionality cannot be demonstrated, as doing so would pose significant safety risks. Training is also frequently disrupted by weather conditions, as the equipment is located outdoors.

The current course content does not fully reflect the variety of silty water treatment plants (SWTPs) or configurations used in real-world construction projects. For instance, large-scale sites may operate up to 20 different SWTPs concurrently, many of which are equipped with advanced features such as automated sensors and high-capacity pumps, none of which are represented in the current training facilities. As a result, Earth Control Measures Officers (ECMOs) are often underprepared for actual site conditions.

In practice, ECMOs tend to rely heavily on suppliers for system operation, troubleshooting, and maintenance. In some cases, training is delivered informally by supplier personnel who may lack the

necessary technical expertise. This has led to operational inefficiencies, disputes, and elevated compliance risks, including the potential revocation of approvals to conduct earthworks due to the discharge of untreated silty water into public drains.

While QECPs undergo a more intensive 10-week programme and provide support to ECMOs, the ecosystem remains without a robust, realistic, and modular training system. Such a system is needed to allow for regular practice, adapt to emerging technologies, and reduce reliance on site-specific and ad hoc solutions.

CHALLENGE / GAP / UNREALISED POTENTIAL

ECMOs often struggle to independently operate and troubleshoot SWTPs due to a lack of hands-on practice with the wide variety of configurations and real-time issues faced on-site. This results in compliance failures which will lead to construction delays. The current training model cannot provide diverse scenario-based learning experiences due to time, space, and safety limitations. There's a missed opportunity to offer immersive, mobile, and scenario-rich training that reflects real operational environments.

Therefore, the Challenge Owner is seeking a scalable, simulation-based training solution that can replicate real-world SWTP scenarios across various plant types, with the goal of enhancing ECMOs' skill retention and operational independence.

CHALLENGE STATEMENT

How might we develop a realistic simulated training solution to help Earth Control Measures Officers improve skill retention, build confidence in operating and maintaining Silty Water Treatment Plants, reduce supplier reliance, and prevent legal discharge violations?

WHAT ARE WE LOOKING FOR?

The Challenge Owner seeks an immersive training solution that enhances ECMOs' competency in SWTP operations and maintenance through realistic simulations. The solution should incorporate a comprehensive range of SWTPs with different configurations, operating scenarios and interactive functions to create an immersive and effective learning experience, equipping ECMOs and QECPs with the necessary skills to perform their roles proficiently.

The solution should meet the following criteria:

- Real-world simulation. The prototype must accurately simulate real-life SWTP operations, replicating the different types of plant configurations, such as chemical and membrane systems. It should be able to simulate realistic site conditions like plant overloads, filter clogs, pump malfunctions, and chemical dosing errors. Scenarios should be customisable to reflect site-specific layouts, capacities, and environmental factors.
- Interactive and experiential learning. The solution must be immersive and engaging, encouraging active participation through interactive interfaces. Features may include gamified elements such as progress tracking, scenario achievements, and peer ranking. Learners should be able to walk through the environment virtually or physically, interact with plant components, make operational decisions, and receive feedback based on outcomes.
- Customisable and expandable scenarios. Trainers and administrators must be able to create and upload new scenarios or modify existing ones based on field feedback. The system should support predefined training paths and dynamic scenario generation (e.g. based on plant type or maintenance history). Coverage should include at least five chemical and three membrane scenarios, with the capacity to expand further. Allow trainers to modify existing scenarios or add on new ones as needed.

- Feedback and assessment. The system should provide immediate feedback on learners' decisions and actions during simulations. Performance tracking should include error logs, timed tasks, and assessment scores. A dashboard should be available for both learners and trainers to monitor individual progress and identify areas for improvement. Assessment data should be suitable for certification and curriculum refinement.
- Administrative tools. The platform must include an intuitive administrative backend for training managers to assign modules, configure plant models, track learner progress, and generate performance reports. It should support scheduling, content updates, version control, role-based access, and integration of regulatory changes.
- Hands-on practice. The solution should encourage repeated, self-directed practice in a safe and controlled simulated environment. Scenarios must reflect high-pressure, real-world conditions. While optional, the integration of physical components (e.g. mock control panels or plant equipment) may enhance learning in blended training formats.
- Mobile and onsite usability. The solution must be deployable on portable devices or mobile carts for use at construction sites or training centres. It should be designed for ease of setup, meet workplace safety requirements, and function effectively across varied field environments.
- Certification support. The training should align with the Certificate of Competency in the operation and maintenance of SWTPs. It allows ECMOs to practice on the digital SWTPs to help them prepare for certification assessments and provide digital credentials upon successful course completion.

OVERALL PERFORMANCE REQUIREMENTS

- Cost-effective. The solution should be economically viable for broad adoption across ECMO teams. It must minimise operational, setup and maintenance costs while delivering strong learning outcomes.
- System integration. The solution should integrate seamlessly with existing Learning Management Systems and Training Management Systems to support streamlined enrolment, tracking, and reporting with minimal disruption to existing workflows.
- User-friendly. The interface should be clean and intuitive, enabling ECMOs with varying levels of digital literacy to navigate the training easily. Prompts, instructions, and feedback should be clear and accessible to support independent learning.
- Scalable and flexible. The solution should be scalable to support a growing user base and adaptable to new SWTP technologies. It should accommodate modular scenario updates and allow new plant configurations to be added without major redevelopment.
- Reliable and robust. High performance and uptime are essential, especially if deployed onsite. The system should be resilient to high traffic, include offline fallback modes if needed, and ensure secure and uninterrupted usage.
- Mobile and safe. The solution should be portable for deployment at training centres and construction sites and designed to comply with workplace safety standards for use in diverse training environments.

TARGETED LEARNERS /USERS

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

- Estimated ~2,100 primary users, comprising Earth Control Measures Officers (ECMOs) responsible for operating SWTPs on-site.
- Estimated secondary users include ~210 Qualified Erosion Control Professionals (QECPs) who play a critical support role in training ECMOs, and ~100 public agency staff (e.g. PUB, LTA, HDB etc) who require an understanding of SWTP operations for regulatory oversight and policy development.

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.

MEASURES OF SUCCESS

- Skill proficiency. Trainees should demonstrate improved competency in the operation and maintenance of SWTPs, as measured through assessments conducted before and after the training. At least 80% of trainees show improvement in the post-training written assessments and at least 80% of trainees achieve a minimum of 70% marks for the post-training written and trainer-led practical assessments.
- Confidence level. A minimum 20% increase in self-reported confidence levels, measured via pre- and post-training self-assessment surveys.
- User satisfaction. At least 70% of participants should report a satisfaction score of 3.5 or above on a five-point scale, based on post-training survey results.
- Scenario breadth. The number of training scenarios experienced per learner should increase from a minimum of five to a maximum of eight.
- Reduced violations. A measurable reduction in the number of discharge incidents exceeding legal limits, tracked over a six-month period following training completion.

POSSIBLE USE CASES

1. Proactive equipment maintenance by new ECMOs. Ravi, a newly appointed ECMO at a mid-sized construction site, is responsible for overseeing a membrane-based SWTP. With limited prior exposure, he struggles to recall the specific checks and maintenance procedures covered during his initial training. Using the new simulated training system, Ravi navigates interactive modules that replicate real-world scenarios, such as clogged filters, faulty sensors, and unexpected shutdowns. Each module offers step-by-step guidance, instant feedback, and opportunities for repeated practice. After sufficient practice, Ravi is now confident to attempt trial assessments on the digital SWTPs. This allows Ravi to internalise the correct procedures, troubleshoot independently, and reduce reliance on supplier support, helping the site maintain legal compliance and minimise downtime.

2. Immersive on-site training for ECMOs. Ahmad, a senior ECMO at a large construction project with over five SWTPs in operation, frequently encounters plant-specific issues not covered in conventional training. Previously, he relied on supplier technicians for support. Now, with access to the simulated training system, Ahmad can practise managing different plant configurations, including adjusting chemical dosing or shutting down pumps during emergency scenarios. The platform mimics the complexities of real-world plant operations, enabling Ahmad to test actions in a risk-free environment. Over time, his ability to detect issues early and take corrective action improves site compliance, prevents discharge violations, and reduces project delays.

3. Continuous Learning for QECPs. Li Mei, a QECP providing professional support across multiple construction sites, is responsible for reviewing the ECM plans including the SWTPs and guiding the ECMOs. With frequent updates to treatment plant technologies and operational guidelines, Li Mei uses the training platform to simulate both common and complex failure scenarios. She revisits functions such as automated dosing systems, alarm-triggered shutdowns, and sensor calibration to ensure she stays current. The system also allows her to propose an appropriate type of SWTPs in her ECM plan submissions for approval. As a result, Li Mei has become more knowledgeable in designing an effective ECM plan and reducing dependency on contractor or supplier for information on SWTPs.

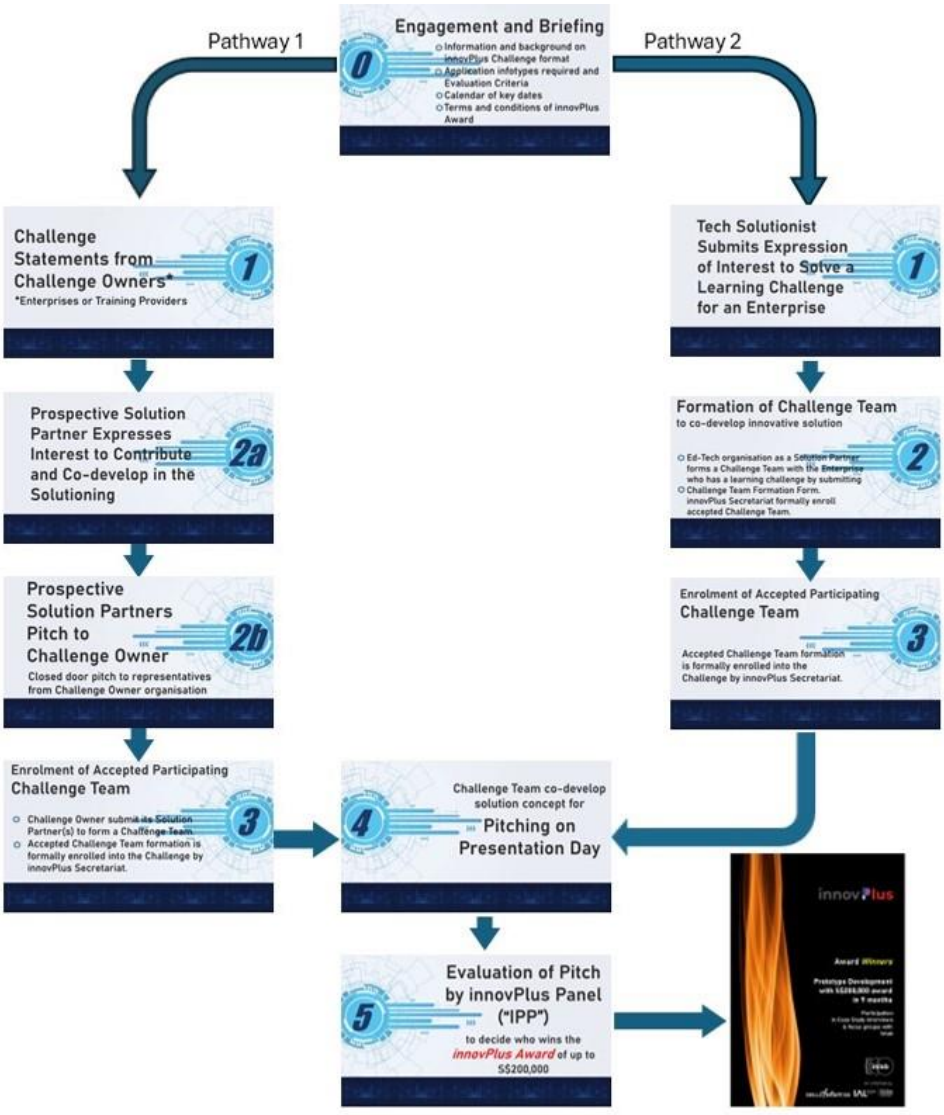
WHAT IS IN IT FOR YOU?

- Up to S$200,000 of prototyping grant (innovPlus Grant) for each winning Challenge Team of the innovPlus Challenge 2025 Run 1 (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 2a of Pathway 1 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 2b of Pathway 1 in 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%)	Has presence in Singapore: The company must have a valid UEN in Singapore. 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 3 of Pathway 1 in Diagram 1). The Challenge Team will pitch their solution in the final round of the competition, known as the innovPlus Presentation Day. On Presentation Day, the Challenge Teams from both Pathways 1 and 2 will present how the envisaged solution could deliver the stated learning outcomes with a presentation and demonstration to the innovPlus Panel (Stage 4 in Diagram 1). The innovPlus Panel shall have the final decision on whom the eventual Grant awardees shall be (Stage 5 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 2025 Run 1 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 (2025 or most recent) with certificate confirming registration of business
- Corporate Compliance and Financial Profile from BizFile (2025 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 **1 Aug 2025, 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[1] for pilot testing with actual learners/users[2] within a maximum duration of 9 months[3].

[1] 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.

[2] *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.

[3] 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 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 ("SUSS-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. The innovPlus Grant is funded by SkillsFuture Singapore ("SSG") and is administered by SUSS-IAL, by appointment of SSG. SUSS-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[4]. Prospective Challenge Owners will be subjected to financial review. 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[5] 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:

   a. innovPlus Challenge Statement Application Form (for prospective Challenge Owner participating via Pathway 1);

   b. innovPlus Expression of Interest ("EOI") Form (for prospective Solution Partner);

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

[4] Govt Agencies list: gov.sg | Ministries (sgdi.gov.sg)
Statutory Board list: gov.sg | Statutory Boards (sgdi.gov.sg)

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

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 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, Centre for Workplace and Learning Innovation, 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

      - Extent that the concept is clear and well-defined;
      - Extent that the concept is distinctive from other similar ideas;
      - Extent the concept aligns or is consistent with existing knowledge and evidence about the challenge being addressed; and
      - Extent the concept fit the context of the learning challenge being addressed, including addressing the key aspects of the learning challenge.

   b. Innovation

      - Extent proposed innovation goes beyond known / existing solutions with (a) clear innovative value and (b) absolute valued add in terms of raising the quality and ROI of the learning and learning outcomes;
      - Extent the proposed solution offers a competitive advantage vis-à-vis existing solutions in the market;
      - Evidence of sound pedagogical design being effectively harnessed to the proposed solution; and
      - Extent of user friendliness and adaptability.

   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 approved budget, which can be in monetary form or in-kind[6].

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:

Tranch & Grant Quantum	Milestone	Milestone Timeline	Typical Grant amount
1st: 30% of maximum grant amount	Effect of LOA by signature of SUSS-IAL and Challenge Owner organisation	Start of Project Period	up to S$60,000
2nd: 20% of maximum grant amount	Mid-Term Progress Report, Presentation and required claim documents	Not more than 3 months after start of Project Period	up to S$40,000
3rd: 20% of maximum grant amount	1st part of Final Summative Report, Prototype and UAT completion, Presentation and required claim documents	Not more than 6 months after start of Project Period	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	Not more than 9 months after start of Project Period	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

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

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 teamwork, 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;

29. The Challenge Team shall undertake to collaborate with SUSS-IAL to allow and facilitate the use of its prototype or solution within sandbox environments to individuals or organisations designated by SUSS-IAL to trial the prototype or solution during and/or after the project; and

30. 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 18 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.

31. 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.

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

GENERAL

33. 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 Centre for Workplace and Learning Innovation, that complies with the intent and spirit of innovPlus.

34. 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.