

# NCL Grant Call 2021

## Information Sheet

### 1. Overview

1.1 The National Cybersecurity R&D Lab (NCL) is funded under National Cybersecurity R&D (NCR) Programme since 2015. NCL aims to provide support to the Singapore cybersecurity R&D community in terms of their research experimentation and testing needs and to develop NCL into a hub that facilitates the growth of a vibrant Singapore cybersecurity ecosystem. To meet these objectives, NCL is pleased to launch the Grant Call 2021.

1.2 NCL invites innovative proposals for NCL grant call 2021. The objective of the grant call is to enable NCL to reach out to a wider community to enhance its services and build in-depth capabilities. The services developed will enrich NCL test bed to serve the Singapore Cybersecurity R&D community better.

### 1.3 Important dates

Submission Opens	10 <sup>th</sup> June 2021
Submission Closes	<b>15<sup>th</sup> Sept 2021 11:59 pm</b>
Presentation to Evaluation Panel	Applicants may be required to present before the evaluation panel.
Notification	15 <sup>th</sup> Nov 2021 Successful applicants are to submit final proposals within 14 days of notification.
Grant Award	15 <sup>th</sup> Dec 2021
Project Start	Jan-Feb 2022 Award acceptance and research collaboration agreements must be signed before the project start date.

## 2. Grant Eligibility

- 2.1 The grant call is open to all researchers from a publicly-funded Singaporean Institute of Higher Learning (IHL) or Research Institution (RI). Eligible IHLs/RIs are listed under Annex (A). Eligibility of entities who are not included in Annex A will be determined on a case by case basis.
- 2.2 Each proposal submission must have a Principal Investigator (PI) who is a full-time researcher (or part-time with at least 75% appointment) at publicly-funded Singapore based IHL/RI.
- 2.3 Evidence of pathway to deployment of proposed research is desirable.
- 2.4 Each team must have a PI from an IHL/RI and may have a co-PI from the corresponding industry sector / agency.
- 2.5 Collaborators may be from any category, local or overseas. Collaborators are not eligible to receive funding from the Grant.
- 2.6 Proposals already funded by other funding agencies are not eligible for funding under this grant call.
- 2.7 All project work must be done in Singapore, unless expressly approved by the NCL Grant Office.

## 3. Project Scope and Topics

The NCL Grant Call 2021 invites proposals in the following areas:

Thrust	Scope Description
A) Threat Analysis and Intelligence	<p>The project of this thrust enriches the NCL platform with tools, services and data that facilitates research solutions in threat analysis. Topics of interest include but not limited to:</p> <ol style="list-style-type: none"> <li>1. Hardened environment for analyzing dark web activities</li> <li>2. Malicious activity (e.g., dark web or APT) data collection and generation</li> <li>3. Technology for efficient system audition</li> <li>4. APT scenario reproduction and analysis</li> </ol>

<p>B) Extending NCL platform to support diverse experiments and solution evaluations</p>	<p>NCL is capable of providing diverse environments to support different types of security experiments. The goal of this thrust is to support users to develop new components to integrate in NCL environments, as well as new benchmarks to measure the effectiveness of security techniques. Topics of interest include but not limited to:</p> <ol style="list-style-type: none"> <li>1. Develop supporting platform for research on dark-web and safe-web projects.</li> <li>2. Creating virtual components extending NCL experiment support for embedded devices, such as IoT, CPS, health care, 5G, and vehicle equipment.</li> <li>3. Develop benchmark for system and network security solutions.</li> <li>4. Develop evaluation platform and benchmark for AI-related security solutions.</li> </ol>
<p>C) Sector-specific enterprise network for security evaluation</p>	<p>Although NCL has built generic components for experiments. However, building of realistic virtual environment requires domain-specific knowledge and insight on the experimentation use cases. This thrust aims to bridge this gap by engaging the community with domain experts. Topics of interest include but not limited to:</p> <ol style="list-style-type: none"> <li>1. Healthcare environments</li> <li>2. Banking and financial network</li> <li>3. Network for shipping industry</li> </ol>
<p>D) Developing services from research project outputs</p>	<p>The goal of this thrust is to support researchers to release their research output as services hosted in NCL. It helps their results to reach a bigger community. Topics of interest include but not limited to:</p> <ol style="list-style-type: none"> <li>1. Vulnerability discovery</li> <li>2. Analysis of dark web, malware, and APT</li> <li>3. Network intrusion detection</li> <li>4. Incident response</li> </ol>

## 4. Funding Scope

4.1 The grant's funding period, quantum, and rate are as follows.

Funding Period	<b>18 - 24 months</b>
Funding Quantum	<b>Up to SGD \$300K</b>
Funding Rate	Up to <b>100%</b> of qualifying direct costs for IHLs/RIs
Indirect Research Funding / Overheads	<b>20%</b> of qualifying direct costs incurred by IHLs/RIs only

4.2 Applicants are required to specify project schedule and budget, reflecting all qualifying costs requested from the grant, in the proposal. The project length and budget should be proportional to proposed project outcomes. The amount allocated to each project party should be clearly specified in the proposed budget.

4.3 Qualifying direct costs include manpower costs, equipment and technical software related expenses, other related operating costs and overseas travel. See Annex B for the guide on fundable and non-fundable costs.

### Use of National Cybersecurity R&D Laboratory (NCL)

4.4 The NCL is a shared national infrastructure that provides computing resources, repeatable and controllable experimentation environments, as well as application services.

4.5 Applicants are required to include the budget to use NCL Laboratory in the proposal for experimentation or validate their R&D outcomes. If the applicants do not intend to use NCL Laboratory, they must highlight in their proposals how the R&D outcomes will be validated. Requests for funding to acquire equipment or setup separate test facilities for the purpose of validating R&D outcomes will not be granted, unless such a scope of work is explicitly required by the problem statement.

4.6 For more information on NCL, please refer to <https://ncl.sg> or contact [support@ncl.sg](mailto:support@ncl.sg).

## 5. Selection Process

- 5.1 Proposals are selected through a one-stage process. Applicants are required to submit full proposals which will be evaluated by an evaluation panel formed by the NCR Programme Directorate.
- 5.2 Applicants may be invited to make a presentation of their proposals to the evaluation panel, if deemed appropriate by the NCR Programme Directorate.

## 6. Application

- 6.1 Applicants should submit full proposals by the specified deadline through the online submission site at <https://cmt3.research.microsoft.com/NCLRD2021>. Submissions are online only.
- 6.2 Below documents duly filled are required to be submitted as attachments:
- 6.2.1 Full proposal in PDF format
  - 6.2.2 Budget, Objectives, Deliverables, KPIs, Gantt Chart in MS Excel document
- 6.3 The full proposal and the MS Excel forms should be prepared according to the template provided. All fields and spreadsheets are required to be filled in.
- 6.4 Full proposals should contain all relevant information required for a proper and complete evaluation of their merits without the need to go back to applicants for additional information.
- 6.5 Where necessary, NCL Grant Office may contact applicants during the submission and evaluation period to request clarifications or additional supporting documents.

## 7. Contact

- 7.1 For further enquiries, please write to NCL Grant Office at [ncl-grant@ncl.sg](mailto:ncl-grant@ncl.sg).

## Annex A

### Eligible IHLs/RIs

The following entities and research centres under their governance are automatically eligible to participate in this NCL Grant Call.

Category	Entities
Institutes of Higher Learning (IHLs) / Research Institutes (RIs)	<ol style="list-style-type: none"> <li>1. National University of Singapore (NUS)</li> <li>2. Nanyang Technological University (NTU)</li> <li>3. Singapore Management University (SMU)</li> <li>4. Singapore University of Technology and Design (SUTD)</li> <li>5. Singapore Institute of Technology (SIT)</li> <li>6. Singapore University of Social Sciences (SUSS)</li> <li>7. Agency for Science, Technology and Research (A*STAR)</li> <li>8. CREATE entities</li> <li>9. Nanyang Polytechnic (NYP)</li> <li>10. Ngee Ann Polytechnic (NP)</li> <li>11. Republic Polytechnic (RP)</li> <li>12. Singapore Polytechnic (SP)</li> <li>13. Temasek Polytechnic (TP)</li> </ol>

Eligibility of other Singapore-based research entities who are not in the list will be considered by NCL Grant Office on a case-by-case basis. Applicants should consult NCL Grant Office in such cases before submitting the application.

## **Guide on Project Cost Items**

### **B.1. General Policy**

1. Only items specified in the approved budget will be funded.
2. All expenditure should be incurred (based on invoice or service rendered date) within the approved duration of the project.
3. Prudence should be exercised for all project costs, and expenditures must comply with internal procurement processes, guidelines and policies of the Institutions (applicable to IHLs, RIs, and Companies)

### **B.2. Fundable Direct Costs**

#### **B.2.1. Expenditure of Manpower (EOM)**

4. Funding of personnel under the grant must comply with prevailing and consistently applied human resource guidelines of the employing Institution(s).
5. This will extend to Institutions' prevailing policies on associated human resources costs (e.g. staff insurance, overtime claims, staff relocation, employment benefits, employment levy, employment pass, pre-examination medical check-up, housing allowance, service award and recruitment associated cost).
6. All EOM related expenses shall be pro-rated taking reference from the project start date, except for lump-sum insurance claims, which shall be allowable as claimed. As a general principle, staff costs should be charged based on time commitment to the project.
7. All Institutions must adhere to the Tripartite Guidelines on Fair Employment Practices<sup>2</sup>. (Please refer to <https://www.mom.gov.sg> for details of the Fair Consideration Framework)

#### **B.2.2. Equipment (EQP)**

8. The Institutions / Investigators shall ensure that the purchase of each equipment is necessary for the project or activity supported by the grant and is not otherwise reasonably available and accessible.

#### **B.2.3. Overseas Travel**

9. The Institutions / Investigators shall ensure that all travel expenses are in line with the Institutions' consistently applied policy on travel. The Institutions are to ensure that any travel undertaken is in relation to the project only and for no other purpose.
10. The purpose of the travel should be directly relevant to the project and necessary to accomplish the project objectives.

#### B.2.4. OOE

11. The Institutions are allowed to make changes within the OOE vote (i.e. changes in quantity and changes in OOE items), provided that these changes are (i) necessary, relevant and used for the Research; (ii) do not constitute a change to the Research; and (iii) are kept within the approved OOE vote budget.

#### B.2.5. Indirect Cost

12. Funding support for indirect costs is applicable to IHLs/RIs only. 12. SGCSG grant office does not manage indirect cost funding. Investigators should refer and adhere to their Institutions' policy of managing indirect cost funding.

### B.3. Non-Fundable Direct Costs

Type of Expenses	Description
Salaries of Lead PI / Investigators / Visiting Professors & researchers / Collaborators / general administrative support staff	Not allowable.
Teaching buy outs	Not allowable for the hiring of substitutes to perform the Investigators' teaching duties.
Stipend top-up for existing postgraduate scholarship holders	Not allowable.
Undergraduate stipend and tuition support	Not allowable.
Costs related to general administration and management	Not allowable. This includes common office equipment, such as furniture and fittings, office software, photocopiers, scanners and office supplies.
Costs of office or laboratory space	Not allowable. This includes renovation/outfitting costs, rent, depreciation of buildings and equipment, and related expenditures such as water, electricity, general waste disposal and building/facilities maintenance charges.
Personal productivity tools & communication expenses	Not allowable, unless the use of mobile phones and other form of smart devices were indicated in the methodology for the project.
Audit fees (Internal and external audit) and Legal fees	Not allowable.
Entertainment	Not allowable.



Refreshment	Not allowable, unless this is related to a hosted conference or workshop for the project.
Fines and Penalties	Not allowable.
Patent Application	Not allowable. This includes patent application filing, maintenance and other related cost.
Professional Membership Fees	Not allowable.
Staff retreat and team-building activities	Not allowable.