NATIONAL
ADDITIVE MANUFACTURING INNOVATION CLUSTER

Project Funding Proposal Template

 **TITLE OF PROJECT**

Project Team:

Name, Designation, Organization

Name, Designation, Organization

**Type of Project:** Standards Development

**Project Title:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Total Budget Requested:** $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Industry:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Overweight Project Criteria - Standards Development** | **Check List** |
| Generation of technical references and standards in the area of AM |   |
| Generation of IP(s), TD(s) or TR(s) leading to Singapore Standard or ISO/ASTM Standard for industry adoption |   |
| Strengthens Singapore's know-how and global standing in strategic sectors (i.e. manufacturing, construction, human capital retention…) |   |

**Commercial Opportunity:**

|  |
| --- |
| [Background of the market needs / how this align to our sectorial roadmap or SG’s RIE2025 vision?] |

**Problem Statement**:

|  |
| --- |
| [Articulate the problem statements or pain points the project intends to solve, and why existing competitive technologies are unable to address these.Outline current landscape and technology limitation. What are the gaps?] |

**Objective:**

|  |
| --- |
| [What are the objective and measurable criteria to assess if the project is successful?] |

**Value propositions of the solution:**

|  |
| --- |
| [What uniqueness/novelty this solution brings?Why is the 3DP solution better than the existing one?] |

**Commercialization Plan:**

|  |
| --- |
| [Provide details on commercialization efforts, IP protection plan, and elaborate on the expected outcome and benefits] |

**Rationale for Support & Potential for Value Capture in SG**

|  |
| --- |
| [Why you think NAMIC should fund you? / Any potential for wider adoption across different industry clusters? How will the project lead to expansion / value-add / sustainability of company’s local R&D activities in SG?] |

## Overview [1000 words or less]

*Please provide a clear outline of your proposed project. Describe the current landscape, gaps identified and the problem statement you plan to address. Explain the significance, importance and the benefits of addressing this problem statement. Describe objectives and commercial outcomes from this project - whether this will be implemented in production, or will generate licensable IP, or will be commercialized as a product or through a start-up or spin-off, etc. Highlight any important outcomes/impact on operations and business, such as the creation of a new line of business, and the GTM (go to market) strategy.*

|  |
| --- |
| [Project Overview] |

## Proposal Description [2000 words or less]

*Treat this section as a way to further elaborate your project, provide technical details, or add information supporting your proposal. Elaborate the current and desired state of the technology, scientific / technological concept and approach, and the key innovations. Explain the level of technology involved (how new it is, examples of industries that have used the tech), and the project feasibility (any prior work demonstrated the preliminary outcome or development team’s experience to undertake project etc.). As much as possible, do not repeat information stated in section 1.*

|  |
| --- |
| [Commercial Opportunity: * Background of the market needs / how this align to our sectorial roadmap or SG’s RIE2025 vision?

Provide technical details that includes information on what, how, why 3D Printing can solve the needs. Examples:* Explain the current technology. What are the gaps?
* Why 3D Printing is important?
* How the 3DP solution works?
* What 3DP method is chosen? Why this 3DP method, not others? Provide cost-benefit comparison
* Quality evaluation criteria

Value Proposition against conventional technology, include information such as novelty etc. Example:* Why is the 3DP solution better than the existing one? Share cost-benefit comparison and provide market assessment (if any).]
 |

## Project Team and Company Background [1.5 pages or less]

*Section 1: Please fill up the table and describe the brief background of the Principal or Co-Principal Investigator (PI or Co-PI) and the project team members, together with their respective role in the project.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PI** | **Co-PI** | Add new columns as required |
| Name with salutation | Mr/Ms/Dr/Prof xx | Mr/Ms/Dr/Prof xx |  |
| Designation |  |  |  |
| Email Address |  |  |  |
| Institute |  |  |  |
| Institute Address |  |  |  |
| % Effort within project*[Effort put in by the research staff in the project relative to his/her other team members. The total effort from all team members should add up to 100%.]* |  |  |  |

*By participating for the NAMIC Project Evaluation Process (PEP), you agree that your personal information as stated in this proposal and provided by you during the PEP may be collected, used and disclosed by NAMIC for business use.*

|  |
| --- |
| [Brief background of the PI & Co-PI] |

*Section 2: Please fill up the table and elaborate the company background.*

|  |  |  |
| --- | --- | --- |
|  | **Collaborator** | **Add new columns as required** |
| Industry Partner |  |  |
| Unique Entity Number (UEN) |  |  |
| Company Enterprise Type | Start-up / Local-SME/ LLE / MNC |  |
| Company Address |  |  |
| Name with salutation | Mr/Ms/Dr/Prof xx |  |
| Designation |  |  |
| Email Address |  |  |

*By participating for the NAMIC Project Evaluation Process (PEP), you agree that your personal information as stated in this proposal and provided by you during the PEP may be collected, used and disclosed by NAMIC for business use. Additionally, as part of the project requirements, industry collaborators are expected to provide inputs for tracking key performance indicators, including realized value-add and revenue growth from AM adoption. This data collection is essential for evaluating the project's impact and will be gathered through periodic surveys. Collaborators also agree to report the realized value-add two to three years after project completion as part of this assessment.*

|  |
| --- |
| [Company background:* Company is established in (YEAR)
* Nature of business
	+ Core service:
	+ Core products:
	+ Exclusive deals or awards:
	+ Overseas presence & proportion of sales turnover:
	+ Other notable aspects of Company
* Current top revenue streams
* Brief background of founders/management
* 2-3 characteristics of the nature your industry
* Name key customers and competitors
* List the next development & growth plans/directions]
 |

## Deliverables, Milestones and Decision Points [1 Page or less]

*Please provide clear deliverables for this project, with a timeline for each deliverable. If appropriate to your proposal, please provide any go-No go decision points.*

|  |  |
| --- | --- |
| Duration of Project (Months): |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestones/****Deliverables** | **Party(ies) Responsible** | **Year 1** | **Year 2** | **Year 3** |
| **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| ***[Insert Milestone 1]*** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***[Insert Milestone 2]*** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Add new rows as required* |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Project Outcome [1 pages or less]

*Please provide a projected quantifiable outcome of the project and elaborate the commercialization path forward after project completion. Estimation is based on best efforts.*

|  |
| --- |
| *[Elaborate the commercialization path forward after project completion* * *What is the strategy for approval/certification?*
* *What is the Go-to-market strategy?*
* *Any end-user commitment?]*
 |

|  |  |  |
| --- | --- | --- |
| Project Outcomes | Estimated Value*Indicate “0” if not applicable* | Details |
| Jobs creation\* | *[Estimate the number of new jobs & annual remuneration in S$]* | *[Briefly explain the job creation potential upon successful of the project/ launch of final product.]* |
| Launch of new product/service | *[Estimate the number of new/improved products / processes from R&D and the additional gross revenues in S$]* | *[What is the new/improved good or service that differs significantly from the organisation’s previous goods or services and that has been introduced on the market?]* |
| Market expansion\* | *[Estimate the additional gross revenues in S$**Number of pilot plant development whichever is applicable]* | *[How will the project lead to expansion / value-add / sustainability of company’s local R&D activities in SG?]* |
| Cost Saving / Productivity Improvement\* | *[Estimate the annual financial gain (S$) from cost saving and productivity improvement]* | *[What is the reduction in cost and/or man-hours needed from conventional practice?]* |
| Investment in AM capex\* | *[Estimate the subsequent investment in AM capex such as equipment, facility, etc.]* | *[Provide details on the potential investment in AM capex]* |
| Creation of new ventures (start-up/spin-off/JV) | *[Estimate number of start-up/spin-off/JV registered]* | *[Any future spin-off opportunity?]* |
| IP Creation / IP licensing / Patent | *[Estimate the number of Foreground IP(s)**Estimate the number of patent applications and patent granted.**Provide the number of background (IP) and amount of licensing royalties where applicable (S$)]* | *[List down the potential Foreground IP (FIP) which includes patents, knowhow, etc. Please indicates IP ID number where necessary.**Please provide details of background IP where applicable.]* |
| Standards / Technical References (TR) / Technology Disclosures (TD) / Publications | *[Please specify the number of standards, TR, TD and/or publications published or to be published in the top 10% most highly cited journals]* | *[Provide details on the standards/TR/TD/ publications. Please indicates any ID number where necessary.]* |
| No. of previous R&D Projects between the host institute and Industry partners | *[Please indicate the number of NAMIC-funded R&D projects between Host Institute (HI) and industry partner]* | *[Please provide project title of past R&D projects between HI and the collaborator and also provide the associated project ID]* |
| Number of external project / grant submissions that follow on from the seed funded project | *[Please indicate the number of external funded project]* |  |
| Clinical Impact | *[Please provide the number of pre-clinical and/or clinical studies conducted (if applicable)]* |  |
| No. of prototypes  | *[Please fill in the expected number of prototypes created]* |  |
| Others |  |  |

\*Remark: To be filled in by industry collaborator where applicable

## Budget Estimation and Funding Requested [0.5 pages or less]

*Please provide the estimated cost of the project under broad line items (Detail should be provided in Annex 1).*

Total project funding of S$[XX,XXX]:

* NAMIC cash funding requested: S$ [A1+B1] (inclusive of GST and 30% overheads)
* Host & Partner institution in-kind contribution: S$ [C1]
* Collaborator cash contribution: S$ [A2+B2] (inclusive of GST and 30% overheads)
* Collaborator cash contribution (not payable to HI): S$ [A3]
* Collaborator in-kind contribution: S$ [C2]

## Risk Analysis [0.5 pages or less]

*Please identify potential risks (i.e. technical, resources, project management, etc.) together with their respective mitigation/contingency/response plan.*

## Schematics & other supporting information [2 pages or less]

*Please provide any schematics, diagrams or tables that help support or clarify your project. Please ensure that these are clearly labelled and will be legible when printed on A4 paper and in black and white (e.g., Letter of Intent or Letter of Support)*

## Ethics Considerations

Has the necessary ethics clearance been obtained for the proposal?

[ ]  Yes. A copy of the ethics approval is attached with this application.

[ ]  No. A copy of the ethics approval will be submitted before the commencement of the project.

[ ]  NA. Our proposal does not involve the use of any of the above.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Ethics Category** | **Involve?****Y/N** | **Ethics Approval Required?****Y/N** | **Ethics Approval Expiry Date** | **Comments** |
| 1 | Human Subject |  |  |  |  |
| 2 | Use of Human Tissues or Cells |  |  |  |  |
| 3 | Animal Experimentation |  |  |  |  |

## ANNEX 1: Breakdown of Project Budget

*Please provide a detailed breakdown of the total budget required for the project. If multiple host institutions jointly contributing to the project, please submit individual fund contribution pertaining to A1, A2, and/or C1 whichever applicable.*

|  |
| --- |
| **OVERALL BUDGET** |
| **T1** | **Total fund contribution by NAMIC** | S$ |
| **T2** | **Total co-fund contribution by collaborator(1:1 requirement)**  | S$ |
|  |  |  |
| **DIRECT COST** |
| **A1** | **Cash contribution by NAMIC CLP to Host Institution** |
| Manpower (EOM) |
| *[Please breakdown the details on** *Number of headcounts for individual role*
* *Description of individual role*
* *%FTE for individual role, if applicable*

*(e.g., 1 x Researcher x 0.1 FTE)]* | S$ |
| *Add new rows as required* | S$ |
| Other Operating Expenses (OOE) |
| *[Please breakdown the details (materials, consumables, animal costs, others)]* | S$ |
| Equipment (EQPT) |
| *[Please breakdown the details (e.g., procurement of parts to build equipment, repair & maintenance - only on NAMIC-funded machine, others)]* | S$ |
| Subtotal (A1 = T1/1.3) | S$ |
|  |
| **A2** | **Cash contribution by Collaborator to Host Institution** |
| Manpower (EOM) |
| *[Please breakdown the details referencing A1]* | S$ |
| Other Operating Expenses (OOE) |
| *[Please breakdown the details referencing A1]* | S$ |
| Equipment (EQPT) |
| *[Please breakdown the details referencing A1]* | S$ |
| Subtotal (A2 = A1 x Cash %1) | S$ |
|  |
| **A3** | **Additional cash contribution by Collaborator2 (Not payable to Host Institution)**  |
| Other Operating Expenses (OOE) |
| *[Please breakdown the details referencing A1]* | S$ |
| Subtotal (A3) | S$ |
|  |  |  |
| **INDIRECT COST** |
| **B1** | **30% overhead charge on project direct cost (A1)** | S$ |
| Subtotal (B1 = A1 x 0.3) |
|  |
| **B2** | **30% overhead charge on project direct cost (A2)** | S$ |
|  | Subtotal (B2 = A2 x 0.3) |
|  |  |
| **IN-KIND** |
| **C1** | **In-kind contribution by Host Institution** |
| Manpower (EOM) |
| *[Please breakdown the details referencing A1]* | S$ |
| Other Operating Expenses (OOE) |
| *[Please breakdown the details referencing A1]* | S$ |
| Equipment (EQPT) |
| *[Please breakdown the details referencing A1]* | S$ |
| Subtotal (C1) | S$ |
|  |
| **C2** | **In-kind contribution by Collaborator** |
| Manpower (EOM) |
| *Please breakdown the details referencing A1* | S$ |
| Other Operating Expenses (OOE) |
| *Please breakdown the details referencing A1* | S$ |
| Equipment (EQPT) |
| *Please breakdown the details referencing A1* | S$ |
| Subtotal (C2 = T1 – A2 – B2 or T1 – A3 or T1 – A2 – B2 – A3) | S$ |
|  |  |  |

*1 Cash % is based on company size: Start-up = 5%, SMEs = 30%, LLEs/MNCs = 50%.*

*2 A3 refers to additional cash contributed by the collaborator, not payable to Host Institution, to purchase new materials, consumables or other expenses specifically procured for the project.*

## ANNEX 2: Conflict of interest declaration from lead pi(s) and co-i(s)

We, the undersigned, each declare that:

We are not in a position of actual, apparent or potential conflict of interest, where there is a divergence between our private interests and our obligations to our respective Institutions such that an independent observer might reasonably question whether our professional actions or decisions concerning this project are determined or biased by considerations of personal gain or benefit.

We have no relationship, affiliation, connection or commercial interests with any other individual or entity, including but not limited to the institution, collaborator(s) and/or industry partner(s) in this project, that might be construed as a conflict of interest.

*Please fill in, inserting rows where necessary and sign inside the boxes.*

|  |  |
| --- | --- |
| **Institution** | **Principal Investigator(s) /Co-Investigator(s)** |
| [Name of Institution] | [Name, Signature and Date] |
| [Name, Signature and Date] |

**NAMIC PEP Project Criteria Guidelines**

|  |  |
| --- | --- |
|  | Project Scope, Team, and Budget Criteria |
|  | Demonstration that the AM research and development is translational in nature and/or product driven, minimally at TRL 4 (3 for bio-medical)1 and beyond. |
|  | Project must address a clear business, market and/or industry need. |
|  | Clear commercialization plan or end point such as the launch of new product or service. |
|  | Generation of IP(s) that can be further licensed, developed and commercialized. |
|  | Project duration is less than 12 months for fast-track and 24 months for full project funding track. |
|  | Project team composition consists of domain expert(s), industry collaborator(s), and/or clinician collaborators (for biomedical application) |
|  | Project minimally meets 1:1 co-funding from industry and/or IHL collaborators (excludes NAMIC IHL contribution) with exception of standards development or translational project |
|  | No double dipping: Project PI and industry collaborator(s) do not solicit for other source(s) of funding concurrently to execute the same project. |
|  | The industry collaborator has presence in Singapore and is ACRA registered. Note :- For direct industry funding such as AM CDG, industry collaborator needs to adhere to ESG’s criteria2. |

1 <https://en.wikipedia.org/wiki/Technology_readiness_level> General Ref : US DoD definition.

2 https://spring.enterprisesg.gov.sg/Growing-Business/Grant/Pages/capability-development-grant.aspx

|  |  |
| --- | --- |
|  | Project Outcome and Impact Desired |
|  | Leads to a new product or business service.  |
|  | Leads to the creation of a new start-up or spin-off company. |
|  | Demonstrates regional or global market potential, with business scale-up plans.  |
|  | Creates social and/or economic impact to Singapore. |
|  | Leads to the adoption of AM with a view to transform the core business. |
|  | Strengthens Singapore’s know-how and global standing in strategic sectors i.e. water, energy, manufacturing, human capital retention etc. |
|  | Leads to the establishment of a foreign company’s establishing a presence in Singapore. |
|  | Generation of TR (Technical Reference) leading to SS (Singapore Standard) or ISO/ASTM Standard for industry adoption. |
|  | Develops and progresses Singapore’s human capital in various AM domains. |
|  | Creates a new product/market segment and enable new business models. |
|  | Creates high value-added jobs. |