**CPAM Industry Led research and development program project application form**

The applicant must preferably be an industry partner. The proposal may be drafted by the R&D partner, but sign-off by the industry partner is required.

This program supports research and development (R&D) projects that address a specific industry requirement in the context of the additive manufacturing technology value chain for metal or polymer additive manufacturing. The project proposal should articulate a specific need associated with technology development with a view of advancing the technology towards higher industrial technology readiness levels. AM processes, pre-processing or post processing technologies, and AM hardware development must be core to the proposal. Material investigation studies or material development studies will only be considered with strong motivation and intention of adoption by the industry lead on the project.

|  |
| --- |
| **Project Title** |
|  |

# **Industry Applicant Details**

|  |  |
| --- | --- |
| **Name of company** |  |
| **Title** |  |
| **Surname** |  |
| **Initials** |  |
| **First name** |  |
| **Citizenship status** |  |
| **Race** |  |
| **Gender** |  |
| **Primary e-mail address** |  |
| **Mobile number** |  |
| **Primary office telephone number** |  |

# **Primary Research and Development Applicant Details**

|  |  |
| --- | --- |
| **Title** |  |
| **Surname** |  |
| **Initials** |  |
| **First name** |  |
| **Citizenship status** |  |
| **Race** |  |
| **Gender** |  |
| **Primary e-mail address** |  |
| **Mobile number** |  |
| **Primary office telephone umber** |  |
| **Name of institution/organisation** |  |

# **Participating Research and Development Applicant Details**

|  |  |
| --- | --- |
| **Name of institution/organisation** |  |
| **Title** |  |
| **Surname** |  |
| **Initials** |  |
| **First name** |  |
| **Citizenship status** |  |
| **Race** |  |
| **Gender** |  |
| **Primary e-mail address** |  |
| **Mobile number** |  |
| **Primary office telephone umber** |  |

Contents

[**Industry Applicant Details** 1](#_Toc172037571)

[**Primary Research and Development Applicant Details** 2](#_Toc172037572)

[**Participating Research and Development Applicant Details** 2](#_Toc172037573)

[**Project Title** 4](#_Toc172037574)

[**Executive summary** 4](#_Toc172037575)

[**Project Background** 4](#_Toc172037576)

[**Project Description** 4](#_Toc172037577)

[**Project Description: Objectives** 4](#_Toc172037578)

[**Project Description: Project Overview** 4](#_Toc172037579)

[**Project Description: Management Plan** 5](#_Toc172037580)

[**Project Description: Detailed Management Plan** 5](#_Toc172037581)

[**Market need / Motivation** 7](#_Toc172037582)

[**Industrialisation & Commercialisation plans** 7](#_Toc172037583)

[**Project Research Team** 8](#_Toc172037584)

[**Expected Outputs: Knowledge-based Outputs summary** 10](#_Toc172037585)

[**Expected Outputs: Knowledge-based Outputs detailed planning** 11](#_Toc172037586)

[**Expected Outputs: Human Capital Development** 12](#_Toc172037587)

[**Project Budget** 13](#_Toc172037588)

[**Ethical Clearance** 14](#_Toc172037589)

[**Attachments** 14](#_Toc172037590)

[**APPROVALS** 15](#_Toc172037591)

# **Project Title**

|  |
| --- |
|  |

# **Executive Summary**

|  |
| --- |
| Provide an abstract of the proposed project, the need for the technology development, the industrial merit, the market opportunity and the anticipated impact. Limit this to 500 words. |
|  |

# **Project Background**

|  |
| --- |
| Provide a description of the present state of the art. Refer to work done by the industry partner and the lead R&D applicant. Articulate the need for the technology development, also in the context of what is already available locally or internationally, that will meet the requirements of the industry partner. Make reference to existing IP related to this project, and whether you will have freedom to operate (Is a patent search applicable and was this done?). |
|  |

# **Project Description**

# **Project Description: Objectives**

|  |
| --- |
| List all project objectives and their explanations in bullet form. |
|  |

# **Project Description: Project Overview**

|  |
| --- |
| Give a detailed overview of the project. State the project technical aims, expected challenges, planned experimental set-ups and equipment required. Please attach diagrams where possible. Max of 5000 words allowed. |
|  |

# **Project Description: Management Plan**

|  |
| --- |
| Give a high-level plan of how the project will be executed. Make reference to own expertise, equipment required, challenges expected and how they will be addressed, planned collaborations. A Gantt chart providing an overview of the project tasks, task durations and milestones must be included in the proposal, as a separate document. **Project proposals without a Gantt chart will be eliminated**. Include comments on laboratory/workshop safety and plans around laser and material safety. Max of 2000 words allowed. |
|  |

# **Project Description: Detailed Management Plan**

Give a detailed plan of how the project(s) will be executed. List all major tasks to be undertaken, including timeframes (start & end date) and resources linked to each task. Describe the task deliverable(s). In cases where your tasks exceed the provided tables, please click on the table mover handle at the top left corner of the table to select it, copy and paste the table below the last tasks to complete this section. The tasks may typically be the main tasks that would constitute the post graduate research projects of the students that will be supported.

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

|  |  |
| --- | --- |
| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

# **Market Need / Motivation**

|  |
| --- |
| Capture the market need and/or motivation for your proposal, in relation to your present products / services offered. Place this also in the context of the South African Additive Manufacturing Strategy. |
|  |

**Business Case**

|  |
| --- |
| Describe the business case for the project. How will the outcome of the project provide a competitive edge, or how will the outcome of the project lead to new proprietary knowledge generation potential, savings on operations, or any other type of return on investment. |
|  |

# **Industrialisation & Commercialisation Plans**

|  |
| --- |
| Describe the route to industrialisation and commercialisation for these products / services. |
|  |

# **Project Research Team**

|  |
| --- |
| Highlight the Principal Investigator’s (PI) track record. If there are external collaborators involved in the project, please also highlight their roles and contribution in the project in table below. **Students are listed under the HCD section** |
|  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Name | Institution | Appointment  status | Role | Contribution to the project | Demographics | | |
| Gender | Race | Citizenship |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Safety officer appointments** | | | | | | | |
|  |  |  |  |  |  |  |  |

**Project Risk**

|  |  |
| --- | --- |
| Provide a critical assessment of risk that might impact on the execution of this project, and how this will be mitigated. | |
| **Risk** | **Mitigation** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# **Expected Outputs: Knowledge-based Outputs Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Output** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Journal papers |  |  |  |  |
| Conference papers |  |  |  |  |
| Technology demonstrators[[1]](#footnote-1) / prototypes[[2]](#footnote-2) |  |  |  |  |
| Process documents[[3]](#footnote-3) |  |  |  |  |
| Patents |  |  |  |  |

# **Expected Outputs: Knowledge-based Outputs Detailed Planning**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Provide a description of the expected knowledge outputs from the project (eg: publications in highly rated journals, conferences and knowledge products) and provide more detail on the planned outputs in the table below. | | | | |
|  | | | | |
| **Title or proposed title of scientific output planned** | **Potential authors / inventors** | **Planned date** | **Name of publication / Conf / other** | **Status of the output** |
| **Journal articles** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Conference papers** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Knowledge products[[4]](#footnote-4) Type of Knowledge Output** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |

# **Expected Outputs: Human Capital Development**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Postdocs supported |  |  |  |  |
| Doctoral students supported |  |  |  |  |
| Master students supported |  |  |  |  |
| **Plans for student graduation** | | | | |
| Doctoral students graduated |  |  |  |  |
| Master students graduated |  |  |  |  |

List all students and staff who will be working towards higher degrees as part of this project. Note, master and doctoral level students are a key driver for this programme. Provide all demographic information for students and staff who will be involved in this project.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Student / Staff member Name** | **Thesis title** | **Degree enrolled** | **Supervisor and co-supervisor** | **Race** | **Gender** | **Nationality** | **Links to industry partner / industry project** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

# **Project Budget**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Number of students |  |  |  |  |
| Labour (only CSIR & industry projects) |  |  |  |  |
| Student support[[5]](#footnote-5) |  |  |  |  |
| Materials and printing |  |  |  |  |
| Testing |  |  |  |  |
| Other consumables |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Total** |  |  |  |  |
| Co-funding (own institution)- COMPULSARY for CSIR and Industry Participants |  |  |  |  |
| Funding leveraged from other sources |  |  |  |  |
| **Total requested from CPAM** |  |  |  |  |

**Summary**

# **Ethical Clearance**

|  |  |
| --- | --- |
| Does this project require ethical clearance? |  |
| Has ethical clearance been obtained? |  |
| Is ethical clearance attached? |  |

# **Attachments**

|  |
| --- |
| The following additional documents must be submitted with your application:   * Comprehensive CV with publication track record and student supervision record for the Principal Investigator (Compulsory). * Gantt chart for the project (Compulsory). * Proof of Ethical approval is required for the proposed research if applicable (Compulsory). |

|  |  |
| --- | --- |
| Description |  |
| Document Type |  |

|  |  |
| --- | --- |
| Description |  |
| Document Type |  |

|  |  |
| --- | --- |
| Description |  |
| Document Type |  |

|  |  |
| --- | --- |
| Description |  |
| Document Type |  |

# **APPROVALS**

**Industrial Partner**

I declare that the information supplied is correct and complete

|  |  |
| --- | --- |
| Applicant Signature | Date |
|  |  |

Approval by Company Director / Delegated Authority

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title |  | Initials |  | Telephone |  |
| Surname | |  | | Fax |  |
| Department | |  | | Mobile |  |
| Company name | |  | | e-mail |  |
| Designated Authority Signature | | | | | Date |
|  | | | | |  |

**Research and Development Partner**

I declare that the information supplied is correct and complete

|  |  |
| --- | --- |
| Applicant Signature | Date |
|  |  |

Approval by Department Head/Designated Authority/Research Administrator or Equivalent Executive

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title |  | Initials |  | Telephone |  |
| Surname | |  | | Fax |  |
| Department | |  | | Mobile |  |
| Institution | |  | | e-mail |  |
| Designated Authority Signature | | | | | Date |
|  | | | | |  |

Please convert to pdf format and submit by return email to: [hgreyling@csir.co.za](mailto:hgreyling@csir.co.za)

1. Technology Demonstrator – “An incomplete version of a complete or scaled down/subset of a product put together as a proof of concept with the primary aim of showcasing the possible applications, feasibility, and method of an idea for a new technology. Different sectors use different terms to describe a technology demonstrator, e.g. in the chemical/bio-chemical sector the term ‘product’ or market sample is used. These terms are acceptable and will be considered to be technology demonstrators.” [↑](#footnote-ref-1)
2. Prototype – “An early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from. There are different types of prototypes (e.g. proof-of-principle; visual; working; functional prototypes). It can also be market samples or similar concepts; depending on the nature of the industry.” [↑](#footnote-ref-2)
3. Technology Package – “a TP is the key document or set of documents that are the basis for the activity of technology transfer. TPs are a means of communicating process information and knowledge to their recipients – the vendors that the sponsors select to perform the work.” This TP can be in the form of a “Process Document” [↑](#footnote-ref-3)
4. See earlier in document for the definition of Knowledge Products [↑](#footnote-ref-4)
5. For doctoral student projects R 250 000 per year per project per student is allowed. This includes a bursary value of R 170 000 and R 80 000 for materials, testing and other consumables per student project. For master students R 180 000 per year per project per student is allowed. This includes a bursary value of R 120 000 and R 60 000 for materials, testing and other consumables per student project. [↑](#footnote-ref-5)