

Manufacturing PA Innovation Program
Manufacturing Fellows Initiative
Request for Proposals
September 20, 2021

Background

The Pennsylvania Department of Community and Economic Development (DCED) established the Manufacturing PA Innovation Program to leverage the internationally acclaimed science and engineering talent and discovery capacity of Pennsylvania's institutions of higher education to ensure that Pennsylvania remains a national and international leader in manufacturing and achieves the full economic potential for high-paying manufacturing jobs. A main component of the Manufacturing PA Innovation Program is the PA Manufacturing Fellows Initiative (PMFI). This initiative supports manufacturing research collaborations between accredited PA colleges/universities and PA manufacturers. The goal of the program is to enable these institutions to seamlessly bring their capabilities to bear to support industrial innovation and position the Commonwealth at the forefront of the next wave of manufacturing.

Specifically, the Innovation Program will leverage the research and innovation capabilities of the Commonwealth's higher education institutions and the technology-rich manufacturing sector of PA industry to form a unique university-industry collaboration that will lead to the following outcomes in the Commonwealth:

- Create a program that is PA manufacturing company driven and uses a competitive proposal process to select and enable projects that will promote innovation in PA's manufacturing job creators.
- Create an environment linking PA companies with students to interest and retain highly-educated students in the field of manufacturing.
- Provide PA companies with a competitive technology edge by introducing them to researchers and universities with equipment and skill sets to which they do not currently have access.
- Open the floodgates of technology assistance and innovation to PA companies by breaking down the barriers to academic expertise.
- Focus the innovation and educational capabilities of PA's world-class research universities on real-world manufacturing solutions for PA.

Request for Proposals

DCED will begin soliciting proposals from September 20, 2021 through November 18, 2021 from faculty Principal Investigators (PI) at any accredited PA college/university for projects that fit within the Innovation Program mission and [program guidelines](#). In this cycle, approximately \$1,900,000 may be made available for research projects.

A faculty member may only submit one proposal as the PI, but may serve as a Co-PI on other proposals.

Proposals must include a PA industry partner. Please note that companies may serve as project partners, but they may not receive state funding. Any company that would like to partner with a university on a project, but has not identified a faculty collaborator, should complete an inquiry form available on the program website (<http://manufacturingpa.org/get-involved/index.html>). Company information will be circulated to PA universities/colleges involved with the program and the names of interested faculty will be provided to the company for follow-up. The company may select a faculty member to collaborate with on a proposal.

The Innovation Program also encourages inter-university collaboration between PA colleges/universities. Projects with clear plans for collaboration with PIs from different universities and a PA manufacturer may be proposed. Each PI must submit a separate application outlining a unique scope of work and anticipated results. They must also provide a separate budget request (up to the \$70,000 limit per proposal) with the required match at a 1:1 ratio. A single industry letter of support may be submitted referencing the work at each university as detailed in each PI's budget.

Proposals will be accepted from September 20, 2021 through **November 18, 2021 at 5:00 pm** with award notices for selected projects expected to be issued by March 1, 2022. Faculty may access the application portal and obtain proposal and budget templates on the ManufacturingPA website (<http://manufacturingpa.org/proposals/index.html>).

Please note that applications are processed through Carnegie Mellon's Infoready portal. Faculty will have to log into the Infoready system using university email accounts. The following university domains are enabled in the system: bucknell.edu, cmu.edu, drexel.edu, duq.edu, gannon.edu, jefferson.edu, lehigh.edu, lockhaven.edu, pennmedicine.upenn.edu, pitt.edu, psu.edu, rmu.edu, seas.upenn.edu, sru.edu, stvincent.edu, temple.edu, thiel.edu, upenn.edu, villanova.edu, widener.edu, and ycp.edu. Applicants from other PA universities/colleges must contact PJ Abels at pabels@andrew.cmu.edu to gain access to the Infoready portal.

Carnegie Mellon University's Manufacturing Futures Initiative is the fiscal agent for this program.

Project Requirements

The Innovation Program will operate as a competitive funding program that will provide Commonwealth-funded incentive grants (approximately \$25,000 to \$70,000) to researcher-led teams at any accredited PA college/university engaged in a short-term (1 year, approximately) manufacturing innovation project with a manufacturer. Projects must focus on advancing a new product or process innovation.

The project period of performance is expected to be 12 months during the window between May 15, 2022 and August 31, 2023. Projects may begin earlier or end later with prior approval from fiscal agent. The project's period of performance should be listed in the budget template.

Applications associated with a project course including at least one PA manufacturer will be considered. These courses must include a significant research project (e.g. capstone or senior design course) and challenge students to solve an industry problem in 1 or 2 semesters. A maximum of one proposal involving capstones will be awarded per university. PIs are encouraged to focus the state funding request on the student expenses related working with the PA manufacturer(s). PIs should minimize any state funding requests for course management/administration expenses. Rather, those expenses should be counted as project cost-share.

Innovation Program funding must be used to support an undergraduate or graduate student under the supervision of a faculty member who is committed to working with a manufacturer and other non-faculty related expenses at universities.

Partner companies and universities are required to provide leverage funding, targeted at \$1.00 for every \$1.00 of state funding, for labor and project expenses to complement the funding by the Commonwealth. Partner companies may provide cash, donations and in-kind contributions as leverage. Universities may utilize non-state government funding sources related to the project. The leveraged funds identified in a project proposal must be in place before state funds are released to the project and must be expended during the period of performance of the project.

The Innovation Program will primarily target projects with partnering PA companies that have manufacturing facilities located within the Commonwealth or firms engaged in developing Pennsylvania locations. Candidate projects may be identified by DCED, universities, Industrial Resource Centers, DCED PREP program partners, Ben Franklin Centers or by self-referral from businesses.

Proposal Review Criteria

Each submitted proposal will be reviewed under a common set of criteria outlined below. The evaluation criteria include intellectual merit/technical approach, student involvement, level of industry engagement, the potential for long term job and business growth and regional diversity across Pennsylvania.

Intellectual Merit: The proposal and corresponding industry letter of support should provide a clear problem statement and outline the manufacturer's need/challenge. The proposal should describe how the proposed work offers an innovative approach to address the manufacturer's need/challenge.

Technical Approach: The proposal shall describe in detail the project's scope of work and the concepts used to achieve the results described. The proposal shall illustrate the relevance of the proposed effort to the technical topic(s) and the strength of the proposal team and the ability of the team to successfully complete the project on-time within the proposed budget.

Active Participation of Graduate and/or Undergraduate Students: A key element of the Innovation Program is to link students (fellows) with companies in an effort to increase the retention of well-educated students in the Commonwealth. Projects with clear plans for interaction of graduate and/or undergraduate students with PA companies are strongly encouraged.

Active Participation of Manufacturers and Impact on PA Manufacturing: To demonstrate industry engagement, PIs are required to supply "support letters" on company letterhead from the participating manufacturers as an attachment to the proposal. In addition to the cost-share information, the support letter should discuss the potential impact of the research project on the organization. The letter should summarize 1) the location and operations in Pennsylvania; 2) the critical need/challenge the company wants to address; and 3) how the successful completion of the project may enhance the company's competitiveness and/or economic development objectives (i.e. provide opportunities for job retention/creation; enable economic efficiencies; create new products; gain access to new markets, etc.).

In addition, the manufacturer's letter of support must identify the financial leverage provided by the organization. Examples of active participation include cash cost matching, equipment/material donations, and in-kind use of company facilities, equipment, materials, and/or personnel to conduct experiments, demonstrations, or other research tasks directly related to the project. The support letters from industry must explicitly list (preferably in a table format) the activities the company will undertake in support of the project along with the monetary value of each of those activities. Note that for leverage funding to be considered as part of the budget proposal, the company support letter **must** quantify the direct cash leverage value and/or the donation value of each in-kind activity. In-kind support will not be counted as leverage unless there is a detailed list of the in-kind donation(s) and the associated monetary value included in the company support letter.

Technical Proposal Template

The Technical Proposal Template is available on the manufacturingPA website -- (<http://manufacturingpa.org/proposals/index.html>) and must be uploaded as part of the application in PDF format. The template requires the following information:

- Executive Summary (Abstract) of Project limited to 200 words -- This section should describe the motivation, objectives, approach, and the expected outcomes and/or potential opportunities **in lay terms**. This should be a high-level summary that a non-technical audience can understand.
- Anticipated Results limited to 200 words
- Relationship to Innovation Program Goals and Potential Impacts on Pennsylvania manufacturing limited to 300 words
- Project Description limited to 3 pages including any figures/tables and references (Please use Times New Roman (or Times) font with 11 pt. or larger font size and 1 inch margins on each page)

Additionally, the application must include a letter of support from the manufacturing partner and the contact name and full address for a company employee who will serve as the company's Innovation Program point-of-contact for the duration of the project. The point-of-contact will be invited to attend events during the course of the project, and will also be asked to provide feedback on the program including a metrics report at the conclusion of the project. Language from the support letter may be included in reporting to the program sponsor.

Budget Request

Project expenses must be submitted on the budget template (available on the manufacturingPA website) and uploaded with the application. Please consider the following requirements when preparing the proposed budget.

- Funds are to be expended by the lead university/college and are not eligible to cover industry partner expenses. The latter should be included as cost-share.
- Faculty salary is not eligible for DCED support under this program. Faculty salary may be included as cost-share.
- PIs should be university faculty members. The project should be performed primarily by a tenured or non-tenure track faculty, staff members, and students at the lead university/college. Graduate and undergraduate students should be listed. If the PI is not able to identify the

specific student who will work on the project when the proposal is submitted, the student should be listed as “to be determined.”

- DCED research funding is limited at a 10% indirect cost rate applied to the Total Direct Costs and as such, is not subject to the university’s federally-negotiated indirect cost rate. Under-recovered indirect costs – variance between an institution’s federally-negotiated rate and DCED’s 10% rate – may be used as university cost-share. (Institutions that do not have a Federally-negotiated rate may not claim any under-recovered indirect costs as university match.)
- Other direct costs:
 - Graduate student: Provide graduate student level of effort and tuition/stipend required to support the student(s) that are funded by the project.
 - Undergraduate student: Provide undergraduate student hourly rate and estimated hours.
 - Travel: Travel is limited to expenses related to faculty and student participation in a one-day statewide annual meeting in Harrisburg, PA and faculty and student meetings at the PA manufacturing partner site. Airfare and hotel expenses for the annual meeting are generally unallowable. Any requests for airfare or hotel expenses must be outlined in the budget justification. Travel costs are capped at state rate levels.
 - Materials and supplies: Materials and supplies must be identified and justified as necessary.
 - Non-Capital Equipment/Software: Equipment and software must be identified and justified as necessary.
 - Printing/Publishing: Expenses must be described and justified.
 - Subcontracts: Subcontracts require a statement of work, contact information, and budget identifying how the funds will be utilized. Subcontracts require approval from DCED prior to funds being released.
 - Other: Other direct costs that do not fall into the categories above should be listed and justified as necessary.

Cost-share must be identified by cost category in the budget at a ratio of \$1 of cost-share for every \$1 of funding requested. University cost share items must be outlined in terms of the type of cost-share (faculty time, student tuition/stipend) and the relationship to the project. The primary funding source must be provided. Please note that other state funding cannot be used as a cost-share source. Any industry cost share listed in the budget should be confirmed in the letter of support accompanying the application. Upon award, the PI will receive a cost-share form to be completed by any external partner providing match and documentation to support the cost-share value(s) identified in that form will be required.

Budget Justification

A budget justification (or budget narrative) must also be submitted in addition to the itemized budget described above. The justification should outline the need for each item in the budget. When preparing a budget justification, please follow the same order of requested items/categories as outlined in the budget.

Budget Summary

PIs must submit a high-level budget summary for the project by major budget category, including Key Personnel, Materials and Supplies and Equipment (if applicable). This information is intended for technical reviewers to evaluate whether the proposal emphasizes the use of state funds for student effort and the likelihood that the project will be able to be completed on-time within the proposed budget. Please do NOT include any sensitive cost-share information, e.g. faculty salary, in this short summary.

Signed Statement of Intent

A signed statement of intent from the University's authorized official indicating institutional endorsement of the proposal and willingness to participate in the project must be submitted with the proposal.

Invoicing and Cost-Share Reporting

Quarterly invoicing will also be required by the project's lead institution. Each invoice will be required to include a cost-share statement that includes the amount incurred to date, current and cumulatively, at the required 1-1 ratio. A cost-share form will be provided when projects are awarded. Reimbursable expenses will be paid up to the amount of cost-share reported.

In order for industry cost-share to be claimed for the project, the company representative must complete/sign the cost-share form which verifies the cost-share (in-kind support/cash) incurred for the invoice period and provide documentation to support the cost-share value(s) submitted.

Reporting and Metrics

Per the DCED requirements, all PIs will be required to assist in identifying and measuring Innovation Program effectiveness. These requirements include:

- Providing university impact information (e.g., students involved, patents, publications, presentations, leveraged funds, follow-on funds).
- Assisting Innovation Program staff in collecting economic impact information (metrics and case studies) for the project.
- Providing a progress report at the project mid-point and a final report at the conclusion of the project. Final reports will be due within 60 days following the reporting period. Mid-point and final report templates will be provided.
- Participating (PI and/or Manufacturing Fellow) in forums to discuss the project with PA manufacturers and DCED officials, including webinar series and statewide annual meeting.
- Identifying DCED as a project sponsor in all project presentations, publications, and discussions of the project with the media.

Following award decisions, students funded through a Manufacturing Innovation award will be emailed a link to an optional online demographic and gender survey. The results of the survey will be used only for reporting purposes to the program sponsor at the request of the program sponsor. We ask PIs to encourage their students to complete the survey for the program's reporting purposes.

Compliance with Sub-Recipient Agreement

Each lead university/college that is successful in receiving a Manufacturing Innovation award will be required to sign a sub-recipient agreement with Carnegie Mellon for PA DCED funds. The university/college must comply with PA DCED sub-recipient agreement language, including, but not limited to, nondiscrimination, conflict of interest, project records, and the PA Prevailing Wage Act.

Intellectual Property

The Commonwealth of Pennsylvania and/or DCED will make no claims to any Intellectual Property generated through Manufacturing Innovation projects. All IP terms and conditions will be governed by the university policies in place at the PI's university and any agreements that may exist between that university and the partner company.

Funding Contingency

Funding awards are contingent upon CMU receiving funds from DCED.

Submittal and Questions

The deadline for submitting proposals is November 18, 2021 at 5:00 pm. Please submit proposals via the manufacturingPA.org website and upload the Technical Proposal Template, proposed budget, budget justification, budget summary, industry letter(s) of support and University statement of intent. Applications are processed through Carnegie Mellon's Infoready portal. Faculty will have to log into the Infoready system using university email accounts. The following university domains are enabled in the system: bucknell.edu, cmu.edu, drexel.edu, duq.edu, gannon.edu, jefferson.edu, lehigh.edu, lockhaven.edu, pennmedicine.upenn.edu, pitt.edu, psu.edu, rmu.edu, seas.upenn.edu, sru.edu, stvincent.edu, temple.edu, thiel.edu, upenn.edu, villanova.edu, widener.edu, and ycp.edu. Applicants from other PA universities/colleges must contact PJ Abels at pabels@andrew.cmu.edu to gain access to the Infoready portal.

Questions should be addressed to Jennifer Leinbach, Executive Director, Office of Technology & Innovation, PA DCED, at jeleinbach@pa.gov or Colleen Mantini, Program Director, Manufacturing PA Innovation Program, at cmantini@cmu.edu.