

Application for Federal Assistance

ID: 2976002
Applicant Name: University of Memphis
Project Title: Build 2 Scale: Innovation Growth Factor
Project Period: 10/01/2021 - 09/30/2024
Federal Funding Requested: \$968,562.00
Non-Federal Funding Requested: \$1,005,434.00
Fiscal Year of Funding Requested: 2021
Federal Application Receipt Date: 04/29/2021
Submitted for: FY 2021 Build to Scale Program
Notice of Funding Opportunity Number: EDA-HDQ-OIE-2021-2006827
CFDA Number: 11.024

Application Documents for Review

File Name	Description	Page
Form SF424A-V1.0.pdf	Budget Information - Non-Construction Programs from Grants.gov	2
Form CD511-V1.1.pdf	Certification Regarding Lobbying from Grants.gov	5
AttachmentForm_1_2-ATT1-UofM_IGFMatchLetters1005210233.pdf	Attachment from Grants.gov	6
AttachmentForm_1_2-ATT4-StartCo_OrgDoc_FINAL1005210240.pdf	Attachment from Grants.gov	13
AttachmentForm_1_2-ATT3-UofM_IDCR_Fringe_Rate_Agreement_FY211005210239.pdf	Attachment from Grants.gov	27
AttachmentForm_1_2-ATT2-UofM_IGF_SupportLetters1005210234.pdf	Attachment from Grants.gov	34
Form AttachmentForm_1_2-V1.2.pdf	Attachment from Grants.gov	39
Form SF424_3_0-V3.0.pdf	Attachment from Grants.gov	40
Form BudgetNarrativeAttachments_1_2-V1.2.pdf	Attachment from Grants.gov	43
Form SFLLL_2_0-V2.0.pdf	Attachment from Grants.gov	44
BudgetNarrativeAttachments_1_2-Attachments-UofMBudget_Narrative_FINAL1005210237.pdf	Attachment from Grants.gov	45
ProjectNarrativeAttachments_1_2-Attachments-UofMInnovation_Growth_Factor_FINAL1005210232.pdf	Attachment from Grants.gov	54
Form ProjectNarrativeAttachments_1_2-V1.2.pdf	Attachment from Grants.gov	64

This Application Report was produced by DoC Grants Online (<https://grantsonline.rdc.noaa.gov>) on 06/09/2021 02:03 PM EDT

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2022

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. BUILD TO SCALE	11.024	\$	\$	\$ 289,400.00	\$ 300,587.00	\$ 589,987.00
2.						
3.						
4.						
5. Totals		\$	\$	\$ 289,400.00	\$ 300,587.00	\$ 589,987.00

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	BUILD TO SCALE				
a. Personnel	\$ 89,647.00	\$	\$	\$	\$ 89,647.00
b. Fringe Benefits	29,163.00				29,163.00
c. Travel					
d. Equipment					
e. Supplies	2,000.00				2,000.00
f. Contractual	90,000.00				90,000.00
g. Construction					
h. Other	27,556.00				27,556.00
i. Total Direct Charges (sum of 6a-6h)	238,366.00				\$ 238,366.00
j. Indirect Charges	51,034.00				\$ 51,034.00
k. TOTALS (sum of 6i and 6j)	\$ 289,400.00	\$	\$	\$	\$ 289,400.00
7. Program Income	\$ 0.00	\$	\$	\$	\$ 0.00

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Prescribed by OMB (Circular A -102) Page 1A

SECTION C - NON-FEDERAL RESOURCES					
(a) Grant Program		(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8.	BUILD TO SCALE	\$ 197,087.00	\$ 0.00	\$ 103,500.00	\$ 300,587.00
9.					
10.					
11.					
12. TOTAL (sum of lines 8-11)		\$ 197,087.00	\$ 0.00	\$ 103,500.00	\$ 300,587.00

SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 289,400.00	\$ 72,350.00	\$ 72,350.00	\$ 72,350.00	\$ 72,350.00
14. Non-Federal	\$ 300,587.00	\$ 75,147.00	\$ 75,147.00	\$ 75,147.00	\$ 75,146.00
15. TOTAL (sum of lines 13 and 14)	\$ 589,987.00	\$ 147,497.00	\$ 147,497.00	\$ 147,497.00	\$ 147,496.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT					
(a) Grant Program		FUTURE FUNDING PERIODS (YEARS)			
		(b)First	(c) Second	(d) Third	(e) Fourth
16.	BUILD TO SCALE	\$ 320,585.00	\$ 358,577.00	\$	\$
17.					
18.					
19.					
20. TOTAL (sum of lines 16 - 19)		\$ 320,585.00	\$ 358,577.00	\$	\$

SECTION F - OTHER BUDGET INFORMATION	
21. Direct Charges: \$ 831,441 Total Direct Costs	22. Indirect Charges: \$ 137,121 Total Indirects (35% of \$391,773 MTDC)
23. Remarks: Total 3-year Project Funds: \$968,562 [Federal] and \$1,005,434 [Non-Federal/Match]	

CERTIFICATION REGARDING LOBBYING

Applicants should also review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, 'New Restrictions on Lobbying.' The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Commerce determines to award the covered transaction, grant, or cooperative agreement.

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

* NAME OF APPLICANT

University of Memphis

* AWARD NUMBER

* PROJECT NAME

Build 2 Scale: Innovation Growth Factor

Prefix:

* First Name:

Middle Name:

* Last Name:

Suffix:

* Title: Manager of Sponsored Programs

* SIGNATURE:

Stephanie Thompson

* DATE:

04/29/2021

April 29, 2021

FY 2021 Build to Scale Competition
Economic Development Administration
Office of Innovation and Entrepreneurship
1401 Constitution Avenue, NW
Suite 71014
Washington, DC 20230


Dear Sir or Madam:

The University of Memphis is fully committed to supporting and promoting this Build to Scale project, *Innovation Growth Factor*, as part of our efforts to further economic development in our region. Promoting the economy of the Midsouth is a primary goal and a priority of our university. Many of our centers on campus have encouraged and supported the establishment and growth of new industry through research, training programs, and consulting.

The proposed project's focus on filling a gap in the STEM entrepreneurial ecosystem in Memphis is consistent with our mission. The funds requested from EDA will strengthen our ongoing efforts to aid in the economic development of our city, region, and state. The non-Federal matching funds committed by the University will be allocated as specified in the proposed budget for the Build to Scale program and will be made available as needed for the project.

If I can provide additional information, please do not hesitate to contact me at research@memphis.edu.

Sincerely,



Dr. Jasbir Dhaliwal
Executive Vice President for Research and Innovation



Herff College of Engineering

201 Engineering Administration Bldg.
Memphis, Tennessee 38152-3170

Office: 901.678.2171
Fax: 901.678.4180

www.memphis.edu

April 19, 2021

FY 2021 Build To Scale Competition
Economic Development Administration
Office of Innovation and Entrepreneurship
1401 Constitution Avenue, NW
Suite 71014
Washington, DC 20230

Dear Sir or Madam:

As the Dean of the Herff College of Engineering at the University of Memphis, I enthusiastically endorse The University of Memphis' (UofM) grant application to the *2021 Build to Scale* program (Venture Challenge) of the US Economic Development Administration. The proposed project, 'Innovation Growth Factor,' directly addresses areas of focus for our college. We are committed to developing diverse engineering talent in our community and are excited about the potential for formalizing entrepreneurial training in our program. The Herff College of Engineering is a leader in STEM workforce development efforts for our region, and the proposed project aligns with our priority of developing a strong pipeline of STEM talent and driving innovation in our community.

The cost-share funding comes primarily from the Educational and General funds designated to the Herff College of Engineering at The University of Memphis. The designated funds will be allocated as specified in the proposed budget for this *Build to Scale* grant and will be made available as needed for the project.

Please feel free to contact me if additional information is required.

Sincerely,

Richard Sweigard, Dean
Herff College of Engineering



Economic Development
and Government Relations

322 Administration Building
Memphis, Tennessee 38152-3370

Office: 901.678.5561

www.memphis.edu

April 19, 2021

FY 2021 Build2Scale Venture Challenge
Economic Development Administration
Office of Innovation and Entrepreneurship
1401 Constitution Avenue, NW
Suite 71014
Washington, DC 20230

Dear Sir or Madam:

The University of Memphis Research Foundation Research Park is a part of the Office of Economic Development and Government Relations at the University of Memphis. The Research Park provides unique value and resources in support of driving student opportunity, economic growth, and further revitalization of an already accelerating city.

The cost-share funding comes primarily from the General funds designated to The University of Memphis. The designated funds will be allocated as specified in the proposed budget for this Build2Scale Venture Challenge and will be made available as needed for the project.

Please feel free to contact me if additional information is required.

Sincerely,

Ted Townsend
Chief Economic Development and Government Relations Officer
Office of Economic Development and Government Relations

April 23, 2021

FY 2021 Build to Scale Competition
Economic Development Administration
Office of Innovation and Entrepreneurship
1401 Constitution Avenue, NW
Suite 71014
Washington, DC 20230

Dear Sir or Madam.

As the Chair of the Department of Mathematical Sciences at the University of Memphis, I fully support The University of Memphis' (UofM) grant application to the EDA FY 2021 Build to Scale Program. Our department plays a lead role in developing STEM talent at the University, and the proposed project aligns with our mission to prepare students for the ever-changing workforce.

The cost-share funding comes primarily from the Educational and General funds designated to the Department of Mathematical Sciences at The University of Memphis. The designated funds will be allocated as specified in the proposed budget for this Build to Scale (Venture Challenge) proposal and will be made available as needed for the project.

Please feel free to contact me if additional information is required.

Sincerely yours,



Irena Lasiecka, Chair
Distinguished University Professor
Dept. of Mathematical Sciences,
University of Memphis
lasiecka@memphis.edu



April 27, 2021

Dr. Stephanie Ivey
Associate Dean for Research
202B Engineering Administration
Memphis, TN 38152

Dear Dr. Ivey,

We are very happy to offer our support in the form of entrepreneurial programming, startup acceleration and mentorship. In support of the grant application to the 2021 Build2Scale (Venture Challenge) of the US Economic Development Administration, we will contribute in-kind services (\$360,000 in value) to integrate and teach our entrepreneurial curriculum into the Herff College of Engineering Apprenticeship Program. In addition, we will teach a summer startup accelerator program designed to help student entrepreneurs take their ideas and concepts to the next level. Our in-kind services will be at no cost to the project or your institution and will be performed over the three year grant period. For audit tracking, we will provide relevant documentation on all in-kind services and work products expended towards this project.

This project is pivotal to growing a strong and sustainable entrepreneurial ecosystem and we are overwhelmingly excited to contribute to this effort. We are truly looking forward to working together on making an impact in our community and the region.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Ramkhelawan". The signature is fluid and stylized, with a long horizontal stroke extending to the right.

Ryan Ramkhelawan
VP of Venture Development
Start Co.



April 28, 2021

Dr. Stephanie Ivey
Associate Dean for Research
202B Engineering Administration
Memphis, TN 38152

Dear Dr. Ivey:

I am writing to confirm support for the University of Memphis' grant application to the *2021 Build2Scale* program (Venture Challenge) of the US Economic Development Administration. The proposed project, 'Innovation Growth Factor,' directly addresses areas of need as well as concentrated focus for our community. Because of the significant investments in the region in building a culture that cultivates and accelerates talent and economic development through multiple accelerators and venture architect companies, Memphis is poised to become a leader in innovation and entrepreneurship, particularly in high-tech and STEM areas.

At FedEx, we believe that a connected world is a better world. Connecting people and possibilities is why we do what we do every day. Connecting people with goods, services, ideas and technologies creates opportunities that fuel innovation, energize businesses and lift communities to higher standards of living.

It is with this context that we offer our support for this program. Beyond capital, talent is the largest area of need for the development of high tech, high growth businesses, corporation innovation, and digital industry. STEM remains at the core of the training needs for all communities, and our industry needs more STEM pipeline investments.

We are excited by the opportunity to help build a skilled entrepreneurial workforce by creating unique programs that provides STEM students with unprecedented training in entrepreneurship and exposure to transformative technologies.

As a mentor partner, we are committed to:

- Mentorship throughout the entire program

The in-kind financial support and time commitment is:

- 60 hours per year for 3 years at \$175 per hour
- Total in-kind commitment equals \$31,500

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Epps".

Michelle Epps
Sr. Vice President, IT

April 19, 2021

Dr. Stephanie Ivey
Associate Dean for Research
202B Engineering Administration
Memphis, TN 38152

Dear Dr. Ivey:

I am writing to confirm strong support for the University of Memphis' grant application to the *2021 Build2Scale* program (Venture Challenge) of the US Economic Development Administration. The proposed project, 'Innovation Growth Factor,' directly addresses areas of need as well as concentrated focus for our community. Because of the significant investments in the region in building a culture that cultivates and accelerates talent and economic development through multiple accelerators and venture architect companies, Memphis is poised to become a leader in innovation and entrepreneurship, particularly in high-tech and STEM areas.

At Green Mountain Technology (GMT), we bring innovation and technology together to help large companies manage their Parcel and LTL spend at a level they could not reach on their own. GMT was founded by a group of entrepreneurs committed to creating substantial financial outcomes for clients, transforming audits through technology and hiring the most talented, dedicated employees.

It is with this context that we offer our support for this program. Beyond capital, talent is the largest area of need for the development of high tech, high growth businesses, corporation innovation, and digital industry. STEM remains at the core of the training needs for all communities.

We are excited by the opportunity to help build a skilled entrepreneurial workforce by creating unique programs that provides STEM students with unprecedented training in entrepreneurship and exposure to transformative technologies.

As a mentor partner, we are committed to:

- Mentorship throughout the entire program

The in-kind financial support and time commitment is:

- 20 hours per year for 3 years at \$150 per hour
- Total in-kind commitment equals \$9000

Sincerely,



Bruce Prentice
VP of IT
Green Mountain Technology

www.GreenMountainTechnology.com

5860 Ridgeway Center Parkway, Suite 401, Memphis, TN 38120
phone: 901.507.9307 toll free: 877.397.2834 fax: 901.507.9329 email: contact@gmcp.com



STATE OF TENNESSEE
Tre Hargett, Secretary of State
Division of Business Services
William R. Snodgrass Tower
312 Rosa L. Parks AVE, 6th FL
Nashville, TN 37243-1102

LAUNCHYOURCITY, INC.
FL 4
66 S COOPER ST
MEMPHIS, TN 38104-4211

June 25, 2013

Filing Acknowledgment

Please review the filing information below and notify our office immediately of any discrepancies.

Control # : 586366 Status: Active
Filing Type: Corporation Non-Profit - Domestic

Document Receipt

Receipt # : 1076724	Filing Fee:	\$20.00
Payment-Check/MO - BAKER, DONELSON, BEARMAN, CALDWELL & BERKOWITZ, NASHVILI		\$20.00

Amendment Type: Assumed Name Image # : 7217-0539
Filed Date: 06/25/2013 2:59 PM

This will acknowledge the filing of the attached assumed name with an effective date as indicated above. When corresponding with this office or submitting documents for filing, please refer to the control number given above. The name registration is effective for five years from the date the original registration was filed with the Secretary of State.

Tre Hargett
Secretary of State

Processed By: Cheryl Donnell

Field Name	Changed From	Changed To
New Assumed Name	No Value	Start Co.

State of Tennessee



Department of State
Corporate Filings
312 Eighth Avenue North
6th Floor, William R. Snodgrass Tower
Nashville, TN 37243

APPLICATION FOR
REGISTRATION OF
ASSUMED CORPORATE
NAME

For Office Use Only

FILED

Pursuant to the provisions of Section 48-14-101(d) of the Tennessee Business Corporation Act or Section 48-54-101(d) of the Tennessee Nonprofit Corporation Act, the undersigned corporation hereby submits this application:

1. The true name of the corporation is LaunchYourCity, Inc.

2. The state or country of incorporation is Tennessee

3. The corporation intends to transact business in Tennessee under an assumed corporate name.

4. The assumed corporate name the corporation proposes to use is
Start Co.

[NOTE: The assumed corporate name must meet the requirements of Section 48-14-101 of the Tennessee Business Corporation Act or Section 48-54-101 of the Tennessee Nonprofit Corporation Act.]

June 24, 2013
Signature Date

LaunchYourCity, Inc.
Name of Corporation

President
Signer's Capacity

Eric Mathews
Signature

Eric Mathews
Name (typed or printed)

Tennessee Secretary of State
Tre Hargett



Division of Charitable Solicitations and Gaming
312 Rosa L. Parks Avenue, 6th Floor
Nashville, Tennessee 37243-1102

Mona Hart
Director

615-741-2555
Mona.Hart@tn.gov

December 18, 2020

Eric Mathews
LaunchYourCity, Inc.
88 Union Avenue, 2nd Floor
Memphis, TN 38103

RE: **APPROVAL** - Registration to Solicit Funds for Charitable Purposes
LaunchYourCity, Inc. - CO12767
Registration Expiration Date: **June 30, 2021**

Dear Eric Mathews:

Pursuant to Tenn. Code Ann. § 48-101-501, *et seq.*, the Division of Charitable Solicitations and Gaming has reviewed your submitted application and is pleased to announce your organization's registration to solicit contributions has been **approved**.

With this approval, your organization has new responsibilities for maintaining statutory compliance, including submission of the proper documents and required fees on an annual basis. The required filings include:

- Completed *Application to Renew Registration* form
- Completed *Summary of Financial Activities* form
- IRS determination letter granting tax-exempt status, if not previously filed
- IRS Form 990, Form 990EZ, or 990N for the most recently completed accounting year, if the organization qualifies as tax-exempt
- An audited financial statement if the organization grossed more than \$500,000 in revenue
- Any amendments to the organization's governing documents

The *Application to Renew Registration* and *Summary of Financial Activities* forms are available on our website at <http://sos.tn.gov/charitable>. Additionally, the "CO" number listed above will serve as your organization's identification number specific to this division and should be included on all correspondence.

Please also be advised that if the organization's application or other provided information includes false, misleading or deceptive statements, appropriate action will be taken. Pursuant to the Tennessee Charitable Solicitations Act, a civil penalty of up to five thousand dollars (\$5,000) may be assessed for any violation.

Thank you for registering your organization and please do not hesitate to contact us with any questions.

Sincerely,

Tre Hargett
Secretary of State

KN:CO12767

INTERNAL REVENUE SERVICE
P. O. BOX 2508
CINCINNATI, OH 201

DEPARTMENT OF THE TREASURY

Date: JUL 22 009

LAUNCHYOURCITY
516 TENNESSEE ST STE 133
MEMPHIS, TN 381

Employer Identification Number:

26-3190220

DLN:

17053340330048

Contact Person:

SHAWNTEL R SANDERS

ID# 31456

Contact Telephone Number:

(877) 829-5500

Accounting Period Ending:

January 31

Public Charity Status:

170(b)(1)(A)(vi)

Form 990 Required:

Yes

Effective Date of Exemption:

September 17, 2008

Contribution Deductibility:

Yes

Addendum Applies:

No

Dear Applicant:

We are pleased to inform you that upon review of your application for tax exempt status we have determined that you are exempt from Federal income tax under section 501(c)(3) of the Internal Revenue Code. Contributions to you are deductible under section 170 of the Code. You are also qualified to receive tax deductible requests, devises, transfers or gifts under section 2055, 2106 or 2522 of the Code. Because this letter could help resolve any questions regarding your exempt status, you should keep it in your permanent records.

Organizations exempt under section 501(c)(3) of the Code are further classified as either public charities or private foundations. We determined that you are a public charity under the Code section(s) listed in the heading of this letter.

Please see enclosed Publication 4221-PC, Compliance Guide for 501(c)(3) Public Charities, for more helpful information about your responsibilities as an exempt organization.

Letter 947 (DO/CG)

-2-

LAUNCHYOURCITY 1

We have sent a copy of this letter to your representative as indicated in your power of attorney

Sincerely,



Robert Choi
Director, Exempt Organizations
Rulings and Agreements

Enclosures: Publication 4221-PC

Letter 947 (DO/CG)

RECEIVED
STATE OF TENNESSEE

2008 SEP 17 AM 10:57

RILEY DARNELL
SECRETARY OF STATE

**Charter
of
LaunchYourCity, Inc**

The undersigned, all of whom are citizens of the United States, desiring to form a Non-Profit Corporation under the Non-Profit Corporation Law of Tennessee, do hereby certify:

First: The name of the Corporation shall be LaunchYourCity, Inc.

Second: The place in this state where the principal office of the Corporation is to be located is 516 Tennessee Str., Suite 133 in the City of Memphis, Shelby County.

Third: The Corporation is a not for profit corporation.

Fourth: The Corporation is public benefit corporation.

Fifth: The Corporation will have members.

Sixth: The Corporation is organized exclusively for charitable and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code, as now enacted or hereafter amended, including, for such purposes, the making of distributions to organizations that also qualify as Section 501(c)(3) exempt organizations. To this end, the corporation shall develop an entrepreneurial community consisting of investors, entrepreneurs, and local organizations through innovative professional, social and educational experiences. All funds, whether income or principal, and whether acquired by gift or contribution or otherwise, shall be devoted to said purposes.

Seventh: The name and complete address of the corporation's initial registered agent and office in Tennessee is:

Name	Address
Harry Brown	98 E Goodwyn Str. Memphis, TN 38111

Eighth: The names and addresses of the persons who are the incorporators are as follows:

Name	Address
Harry Brown	98 E Goodwyn Str. Memphis, TN 38111
Eric Mathews	516 Tennessee Str., Suite 133, Memphis, TN 38103
Chris Allen	3639 Forrest Ave. Memphis TN 38122

Ninth: No part of the net earnings of the corporation shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in

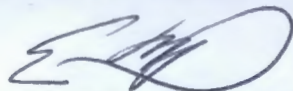
RECEIVED
STATE OF TENNESSEE
2008 SEP 17 AM 10:57
FILED
SECRETARY OF STATE

Article Third hereof. No substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of or in opposition to any candidate for public office.

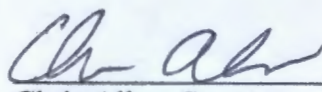
Notwithstanding any other provision of these articles, the corporation shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code, or the corresponding section of any future federal tax code, or (b) by a corporation, contributions to which are deductible under section 170(c)(2) of the Internal Revenue Code, or the corresponding section of any future federal tax code. Notwithstanding any other provision of these articles, this corporation shall not, except to an insubstantial degree, engage in any activities or exercise any powers that are not in furtherance of the purposes of this corporation.

Tenth: Upon the dissolution of the corporation, assets shall be distributed for one or more exempt purposes within the meaning of section 501(c)(3) of the Internal Revenue Code, or the corresponding section of any future federal tax code, or shall be distributed to the federal government, or to a state or local government, for a public purpose. Any such assets not so disposed of shall be disposed of by a Court of Competent Jurisdiction of the county in which the principal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

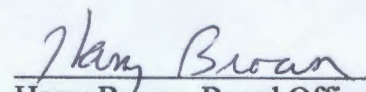
In witness whereof, we have hereunto subscribed our names this day of August 28, 2008.



Eric Mathews, President



Chris Allen, Secretary



Harry Brown, Board Officer

6375.1002

RECEIVED
STATE OF TENNESSEE

2008 SEP 17 AM 10:57

RILEY DARNELL
SECRETARY OF STATE

BY-LAWS OF

LaunchYourCity, Inc. A NOT-FOR-PROFIT CORPORATION

ARTICLE I ORGANIZATION

1. The name of the organization shall be LaunchYourCity, Inc.
2. The organization may at its pleasure, by a vote of the Board of Directors, change its name.

ARTICLE II PURPOSES

The corporation is organized exclusively for charitable and educational purposes specifically to promote economic development.

ARTICLE III MEMBERSHIP

Membership in this organization shall be open to all that are interested in participating the organizations purpose and activities. The Board of Directors will determine further membership criteria.

ARTICLE IV ANNUAL MEETINGS

Section 4.1: Meeting Date

The annual Board of Directors meeting of this organization shall be held on the first work day of May each and every year. The date may be changed if so desired by the Board of Directors. The new date shall be chosen by the Board and shall not be more than two weeks from the date fixed by these By-Laws.

Section 4.2: Meeting Notice

The Secretary shall be responsible for emailing every Board Director at his email address as it appears in the roll book of this organization, a notice telling the time and place of such annual meeting.

Section 4.3: Meeting Location

Regular meetings of this organization shall be held at 516 Tennessee Street, Suite 133, Memphis TN, 38103 or in a location designated by the Secretary's mailings.

Section 4.4: Meeting Quorum

The presence of not less than seventy percent (70%) of the Board Directors shall constitute a quorum and shall be necessary to conduct the business of this organization.

6375-1003

Special meetings may be held at any time when called for by the Chair or a majority of Board members. Notices of such meetings shall be emailed to Board Directors at their addresses as they appear in the roll book at least five (5) days before the scheduled date set for such meeting. Such notice shall state the reasons that such meeting has been called, the business to be transacted at such meeting and by whom it was called.

ARTICLE V MEMBER MEETING VOTING

Section 5.1: Voting Form

At all meetings votes shall be by voice.

Section 5.2: Voting at Additional Meetings

At any regular or special meeting, if a majority so requests, any question may be voted upon via email, ballot, or voice.

ARTICLE VI ORDER OF BUSINESS

Any director meeting shall follow the format below:

1. Roll Call.
2. Reading of the Minutes of the preceding meeting.
3. Reports of Committees.
4. Reports of Officers.
5. Old and Unfinished Business.
6. New Business.
7. Adjournments.

ARTICLE VII BOARD OF DIRECTORS

Section 7.1: Membership and Compensation

The Board of Directors shall serve without pay and consist of twelve (12) members. Nothing herein shall be construed to prevent a director for receiving any compensation from the organization for duties other than as a director.

Section 7.2: Board Members

The Board of Directors shall be the Founders of the Organization as listed in Appendix A.

Section 7.3: Chairman of the Board

The Chairman of the Board of Directors shall be elected by the directors. The Chairman of the Board of Directors will be elected for a one year term. The Chairman will be responsible for running the annual board meeting.

Section 7.4: Special Board Meetings

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RILEY BARNELL
SECRETARY OF STATE

Special meetings may be held at any time when called for by the Chair or a majority of Board members. Agendas shall be provided at least one (1) day in advance.

Section 7.5: Remote Meeting Attendance

Members of the Board of Directors, or any committee designated by the Executive Board, may participate in a meeting by means of conference telephone, audio/video transmission, or similar communications medium, provided that all persons participating in the meeting can simultaneously communicate on a real-time basis with all other participants. Such participation shall constitute presence in person at such meeting.

Section 7.6: Conflict of Interest

Any member of the board who has a financial, personal, or official interest in, or conflict with any matter pending before the Board, will offer to voluntarily excuse him/herself from voting on and discussing the issue.

Section 7.7: Director Dismissal

Board members with five (5) absences in one twelve month period shall be dismissed from the Board.

Section 7.8: Director Removal

A director may be removed when sufficient cause exists for such removal. The Board of Directors may entertain charges against any director. Following the presentation of charges, approval of a majority of Board members is needed to begin removal proceedings. A director may be represented by counsel upon any removal hearing. After the removal hearing, removal must be approved by a unanimous decision of the remaining directors. The Board of Directors shall adopt such additional rules for this hearing as it may in its discretion consider necessary for the best interest of the organization.

Section 7.9: Addition of Board Members

The Board of Directors may add to or replace after removal of, Directors to the Board by unanimous decision.

ARTICLE VIII EXECUTIVE BOARD

Section 8.1: Organization Management

The business of this organization shall be managed by an Executive Board of Directors consisting of three (3) members: President, Secretary and Board Officer. At least one member of the Executive Board of Directors shall be a resident of the State of Tennessee and a citizen of the United States. Executive Board Members shall by virtue of their office be members of the Board of Directors.

Section 8.3: Executive Board Duties

The Executive Board of Directors shall have the control and management of the affairs and business of this organization. Such Executive Board of Directors shall only act in the name of the

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RILEY BARNELL
SECRETARY OF STATE

organization. The Executive Board of Directors shall appoint all committees, temporary or permanent.

Section 8.4: Executive Board of Directors Selection

Members of the Executive Board of Directors shall be selected by the Board of Directors. The initial Executive Board of Directors as chosen by the Board of Directors is as follows:

President: Eric Mathews
Secretary: Chris Allen
Board Officer: Harry Brown

Section 8.5: Executive Board President Responsibilities

The President shall

Section 8.5.1: Preside at all membership meetings except the annual member meeting.

Section 8.5.2: Present at each annual meeting of the organization an annual report of the work of the organization.

Section 8.5.3: See all books, reports and certificates required by law are properly kept or filed.

Section 8.5.4: Be one of the officers who may sign the checks or drafts of the organization and may legally bind the organization

Section 8.5.5: Have such powers as may be reasonably construed as belonging to the chief executive of any organization.

Section 8.6: Executive Board Secretary Responsibilities

The Secretary shall

Section 8.6.1: Keep the minutes and records of the organization in appropriate books.

Section 8.6.2: Give and serve all notices to members of this organization.

Section 8.6.3: Be one of the officers who may sign the checks or drafts of the organization and may legally bind the organization

Section 8.6.4: Present to the membership at any meetings any communication addressed to him as Secretary of the organization.

Section 8.6.5: Be the official custodian of the records of this organization.

Section 8.6.6: Submit to the Board of Directors any communications which shall be addressed to him as Secretary of the organization.

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RILEY DARNELL
SECRETARY OF STATE

Section 8.6.7: Attend to all correspondence of the organization and shall exercise all duties incident to the office of Secretary.

Section 8.6.8: Shall in the event of the absence or inability of the President to exercise his office become acting president of the organization with all the rights, privileges and powers as if he had been the duly elected president.

Section 8.7: Executive Board Officer Responsibilities

The Board Officer shall

Section 8.7.1: Be the main contact for correspondence with governmental agencies.

Section 8.7.2: Assist the Secretary and President.

Section 8.7.3: Be one of the officers who may sign the checks or drafts of the organization and may legally bind the organization

Section 8.7.4: Shall be his duty to file any certificate required by any statute, federal or state.

Section 8.7.5: Shall in the event of the absence or inability of the President and Secretary to exercise his office become acting president or Secretary of the organization with all the rights, privileges and powers as if he had been the duly elected president or secretary.

Section 8.8: Executive Board Compensation

No member of the Executive Board shall for reason of his office be entitled to receive any salary or monetary compensation, but nothing herein shall be construed to prevent an officer or director for receiving any compensation from the organization for duties other than as a director or officer.

ARTICLE IX COMMITTEES

All committees of this organization shall be appointed by the Executive Board of Directors and their term of office shall be for a period of one year or less if sooner terminated by the action of the Executive Board of Directors.

ARTICLE X DUES

There are no dues for this organization.

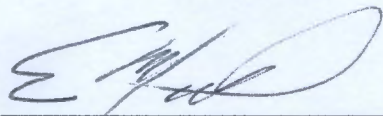
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RILEY DARNELL
SECRETARY OF STATE

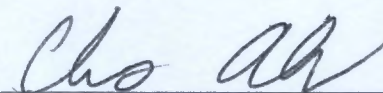
ARTICLE XII AMENDMENTS

These By-Laws may be altered, amended, repealed or added to by an affirmative vote of not less than seventy-five (75%) percent of the Board of Directors.

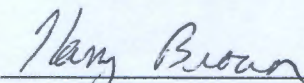
These Bylaws were unanimously approved by the Board of Directors of LaunchYourCity, Inc on September 12, 2008.



Eric Mathews
President



Chris Allen
Secretary



Harry Brown
Board Officer

6375-1008

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APPENDIX A: FOUNDING MEMBERS

Name	Organization
Chris Allen	Mercury Technology Labs
Dave Barger	LunaWeb
Harry Brown	Harry J Brown, Attorney at Law
Marc Diaz	Mercury Technology Labs
Spencer Dillard	Spencer Dillard Consulting
Anna Ivey	Morgan Keegan
Eric Mathews	Mercury Technology Labs
Jillian Patton	Jillian Freelance Design
Douglas Scarboro	The Leadership Academy
Gwin Scott	EmergeMemphis
Sridhar Sunkara	Center City Commission
Lori Turner	The RedRover Company

6375.1005



DEPARTMENT OF HEALTH & HUMAN SERVICES

Program Support Center
Financial Management Portfolio
Cost Allocation Services

7700 Wisconsin Ave, Suite 201
Bethesda, MD 20814
PHONE: (301) 492-4855
FAX: (301) 492-5081
EMAIL: CAS-Bethesda@psc.hhs.gov

April 14, 2020

Mr. George Ninan
Controller
University of Memphis
275 Administration Building
Memphis, TN 38152-3370

Dear Mr. Ninan:

A copy of a facilities and administrative (F&A) cost and fringe benefit (FB) Rate Agreement are being emailed to you for your signature. This Agreement reflects an understanding reached between your organization and a member of my staff concerning F&A and FB rates that may be used to support your claim for these indirect costs on grants and contracts with the Federal Government.

Please have the Agreement signed by an authorized representative of your organization and email it to me, retaining the copy for your files. Our email address is cas-bethesda@psc.hhs.gov. We will reproduce and distribute the Agreement to the appropriate awarding organizations of the Federal Government for their use.

The fixed rates for fiscal year ended June 30, 2018 and June 30, 2019 are considered final.

In addition, your FB cost rates for fiscal year ending June 30, 2021 based on actual costs for the fiscal year June 30, 2019 and FB cost rates for fiscal year ending June 30, 2020 based on actual costs for fiscal year ended June 30, 2018 over-recovered (+) or under-recovered (-) amounts are listed below:

	2019/2021	2018/2020
Salaried	\$398,101	\$(1,077,204)
Hourly	\$304,011	\$(1,062,137)
Temporary – No Insurance	\$(8,540)	\$103,752
Temporary - Insurance	(\$119,166)	\$119,957
Student G/A	(\$6,466)	(\$12,345)

Mr. George Ninan
April 2, 2020
Page 2

A FB cost proposal, together with supporting information and the certified audit financial statement, is required each year. Thus, your next FB cost proposal based on actual costs for the fiscal year ending June 30, 2020 is due in our office by December 31, 2020. Your next F&A proposal based on actual costs for the fiscal year ending June 30, 2020 is due in our office by December 31, 2020.

Since this is an integral part of the Negotiation Agreement, please note your acceptance by signing in the space provided below.

Thank you for your cooperation.

Sincerely,

Darryl W.
Mayes -S

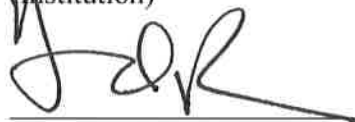
Digitally signed by Darryl W.
Mayes -S
DN: c=US, o=U.S. Government,
ou=HHS, ou=PSC, ou=People,
0.9.2342.19200300.100.1.1=2000
131669, cn=Darryl W. Mayes -S
Date: 2020.04.17 16:13:39 -04'00'

Darryl W. Mayes, Deputy Director
Cost Allocation Services

Enclosures

ACCEPTANCE:

The University of Memphis
(Institution)



(Signature)

PRESIDENT

(Title)

M. DAVID RUDD

(Name)

4.27.2020

(Date)

COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 1620648618A1

DATE:04/14/2020

ORGANIZATION:

FILING REF.: The preceding
agreement was dated
05/14/2019

University of Memphis
275 Administration Bldg
Memphis, TN 38152-3370

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

RATE TYPES: FIXED FINAL PROV. (PROVISIONAL) PRED. (PREDETERMINED)

EFFECTIVE PERIOD

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE(%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2017	06/30/2021	43.50	On-Campus	Organized Research
PRED.	07/01/2017	06/30/2021	55.00	On-Campus	Instruction
PRED.	07/01/2017	06/30/2021	35.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2017	06/30/2021	26.00	Off-Campus	All Programs
PROV.	07/01/2021	Until Amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2021.

*BASE

ORGANIZATION: University of Memphis

AGREEMENT DATE: 4/14/2020

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of \$25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

ORGANIZATION: University of Memphis

AGREEMENT DATE: 4/14/2020

SECTION I: FRINGE BENEFIT RATES**

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE(%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
FIXED	7/1/2019	6/30/2020	35.60	All	Salary Employees
FIXED	7/1/2019	6/30/2020	51.20	All	Hourly Employees
FIXED	7/1/2019	6/30/2020	8.10	All	Temporary Employees - No Insurance
FIXED	7/1/2019	6/30/2020	31.70	All	Temporary Insurance - Insurance
FIXED	7/1/2019	6/30/2020	0.80	All	Student/GA
FIXED	7/1/2020	6/30/2021	36.30	All	Salary Employees
FIXED	7/1/2020	6/30/2021	55.90	All	Hourly Employees
FIXED	7/1/2020	6/30/2021	7.20	All	Temporary Employees - No Insurance
FIXED	7/1/2020	6/30/2021	32.30	All	Temporary Insurance - Insurance
FIXED	7/1/2020	6/30/2021	1.10	All	Student/GA
PROV.	7/1/2021	Until amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2021.

** DESCRIPTION OF FRINGE BENEFITS RATE BASE:

Salaries and wages.

ORGANIZATION: University of Memphis

AGREEMENT DATE: 4/14/2020

SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate(s) are listed below.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

OFF-CAMPUS DEFINITION: For all activities performed in facilities not owned by the institution and to which rent is directly allocated to the project(s) the off-campus rate will apply. Grants or contracts will not be subject to more than one F&A cost rate. If more than 50% of a project is performed off-campus, the off-campus rate will apply to the entire project.

Fringe Benefits include: FICA, Retirement, Life Insurance, Unemployment Insurance, Health Insurance, Scholarship Benefits, Compensated Absences, Terminal Pay, Death Benefits and Workers' Compensation.

This Rate Agreement applies to the University of Memphis and the University of Memphis Research Foundation (EIN 20-5400381).

This Rate Agreement is for Fringe Benefit Rates only.

Your next Fringe Benefit cost proposal based on actual costs for the fiscal year ending 6/30/2020 is due in our office by 12/31/2020 and your next F&A proposal based on actual costs for the fiscal year ending June 30, 2020 is due in our office by December 31, 2020.

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or \$5,000.

ORGANIZATION: University of Memphis

AGREEMENT DATE: 4/14/2020

SECTION III: GENERAL

A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted: such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:

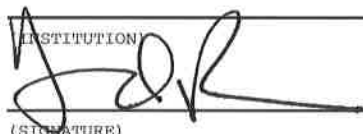
The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of Memphis


(SIGNATURE)

M. DAVID RUDA
(NAME)

PRESIDENT
(TITLE)

4-27-2020
(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)
Darryl W. Mayes - S
Digitally signed by Darryl W. Mayes - S
DN: c=US, o=U.S. Government, ou=HHS, ou=PHS,
ou=People, ou=3342.19200300.100.1.1-3000111609,
cn=Darryl W. Mayes - S
Date: 2020.04.17 16:12:44 -0400
(SIGNATURE)

for Arif Karim
(NAME)

Director, Cost Allocation Services
(TITLE)

4/14/2020
(DATE) 7075

HHS REPRESENTATIVE: Ernest Kinneer

Telephone: (214) 767-3261



April 19, 2021

Dr. Stephanie Ivey
Associate Dean for Research
202B Engineering Administration
Memphis, TN 38152

MAAG Officers & Board Members

Officers

Commissioner Hugh Davis, Jr. Piperton, TN
Chairman

Councilwoman Sherry Holliman, Marion AR
Acting Vice-Chairman

Mayor Terry Jones, Millington, TN
Acting Secretary-Treasurer

**Executive Committee &
Minority Representatives**

Commissioner Hugh Davis, Jr.
Chairman, Piperton, TN

Mayor Terry Jones, Millington, TN
Acting Secretary/Treasurer

Mayor Jon Pavletic, Ripley, TN

Mayor Maurice Gaines, Jr., Lauderdale County
Chief of Police Roy Hill, Jericho, AR

Board Members

Mayor Henry Coats, Piperton, TN

Rep. Barbara Cooper, District 86, State of TN

Mayor Jon Pavletic, Ripley, TN

Mayor Frank Fogelman, Marion, AR

Mayor Justin Hanson, Covington, TN

Mayor Lee Harris, Shelby County

Mayor Keith McDonald, Bartlett, TN

Mayor Eugene Pugh, Halls, TN

Mayor Jim Strickland, Memphis, TN

Mayor Rhea "Skip" Taylor, Fayette County

Executive Director
Ralph Moore

MAAG
8289 Cordova Road, Suite 103
Cordova, Tennessee 38016

(901) 729-2871 Office
(901) 729-4107 Fax

Dear Dr. Ivey:

I am writing to confirm strong support for the University of Memphis' grant application to the *2021 Build2Scale* program (Venture Challenge) of the US Economic Development Administration. The proposed project, 'Innovation Growth Factor,' directly addresses areas of need as well as concentrated focus for our community. Because of the significant investments in the region in building a culture that cultivates and accelerates talent and economic development through multiple accelerators and venture architect companies, Memphis is poised to become a leader in innovation and entrepreneurship, particularly in high-tech and STEM areas.

The proposed project addresses a known gap in providing entrepreneurial training at the collegiate level and will serve as a catalyst to increase company development – particularly in the areas of STEM/advanced technologies. It also addresses one of our primary areas of need identified in the Greater Memphis Area CEDS – that of enhancing skills of our labor force. This project is unique in that it leverages strengths of the University of Memphis and its Engineering Apprenticeship Program with that of StartCo. and its successful model for accelerating and developing profitable companies – nationally and globally. This partnership will prepare students for the 21st century workforce with a robust set of skills and competencies they may not otherwise develop. Even more exciting is the potential for this project to increase diversity and equity for our community through the diverse students served by the University of Memphis.

The extensive network of entrepreneurial incubators and resources already in place in Memphis will provide crucial support to building this program for university students and creating a truly unique learning experience. The extensive partnership between academia and industry proposed in this project is crucial to upskilling our workforce, enhancing economic opportunity and equity for our citizens, and promoting Memphis-based businesses on a national and global stage.

The goals of this project support local and regional goals for workforce and economic development and will serve to strengthen our ability to accelerate high quality jobs and support next generation tech entrepreneurs and companies. Please consider this letter as an indication of my full support for this project.

Sincerely,

Ralph Moore
Executive Director



Brian Kelsey
State Senator
Chairman, Education
Committee
District 31: Cordova,
East Memphis, and Germantown

Senate Chamber **State of Tennessee**

744 Cordell Hull Building
Nashville, TN 37243-0231
1-800-449-8366 ext. 13036
(615) 741-3036
fax (615) 253-0266
sen.brian.kelsey@capitol.tn.gov
www.briankelsey.org

April 29, 2021

Dr. Stephanie Ivey
Associate Dean for Research
202B Engineering Administration
Memphis, TN 38152

Dear Dr. Ivey:

I am writing to confirm support for the University of Memphis' grant application to the *2021 Build to Scale* program (Venture Challenge) of the US Economic Development Administration. The proposed project, 'Innovation Growth Factor,' directly addresses areas of need as well as concentrated focus for our community. Because of the significant investments in the region in building a culture that cultivates and accelerates talent and economic development through multiple accelerators and venture architect companies, Memphis is poised to become a leader in innovation and entrepreneurship, particularly in high-tech and STEM areas.

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next generation tech entrepreneurs and companies. Please consider this letter as an indication of my support for this project.

Sincerely,

Brian Kelsey

Senator Brian Kelsey



April 29, 2021

Lucas Blankenship
U.S. Economic Development Administration
Atlanta Regional Office
401 West Peachtree Street, NW, Suite 1820
Atlanta, GA 30308-3510

Re: Innovation Growth Factor

Dear Mr. Blankenship,

The City of Memphis Division of Engineering has the responsibility to lead project development, design, and execution in the City of Memphis. Our focuses include innovative changes to transportation design and operations, stormwater and sewer management systems, and overall public space through the adoption of new technologies that improve our efficiency, provide forecasting, and allow analysis. With a small staff to manage a city of 325 square miles of infrastructure, with over 650,000 residents and 800,000 daily visitors, these tools are critical to our success. The smart city program included in the mixed-use development, The Walk on Union, provides us the needed resources to test new technology and programs that can be scaled up for installations across the City of Memphis.

This smart city program also increases access to new opportunities for the citizens of our city. Our population is over 70% minority and while our poverty rate has improved over the past few years, over 35% of our children remain in homes below the poverty level. The partnerships between Start Co. and the University of Memphis are providing new job opportunities and access to training and enrichment programs not previously available to our citizens.

The holistic approach this program brings to Memphis will accelerate the City's ability to perform services, provides new resources for our business community to grow, and dramatic improvement in the lives of Memphians. I hope the full impacts of this proposal are clear and thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen Edwards".

Stephen Edwards, PE
Transportation Planning Program Manager



April 27, 2021

Mr. Lucas Blankenship
U.S. Economic Development Administration
Atlanta Regional Office
401 West Peachtree Street, NW, Suite 1820
Atlanta, GA 30308-3510

RE: Innovation Growth Factor

Dear Mr. Blankenship,

Memphis Area Transit Authority (MATA) is the regional transit provider for the Memphis area, providing fixed-route bus, paratransit, and rail trolley service to an area of about 280 square miles and about 750,000 residents. MATA is exploring corporate innovation opportunities around a smart and connected city mixed use development called Union Row. Union Row is underway with a smart and connected city plan for improved business, residential, and governmental connectivity, data usage, and entrepreneurship plan with investments to generate 1,000 jobs, 675 households connected to the internet, and the education and workforce training of 3,000.

Emerging technologies in the mobility and transportation space are of great importance to MATA's mission to connect people to places and provide innovative transportation solutions, and we support this EDA Build to Scale Venture Challenge application. This partnership between Start Co. and the University of Memphis to source and scale startups to uncover solutions in the supply chain is an area we look forward to participating in.

We see this as a unique opportunity nationally, and your investment would increase our interest in leveraging this work even further for the goals of our organization.

Sincerely,

Gary Rosenfeld
Chief Executive Officer

Memphis Area Transit Authority - 1370 Levee Road, Memphis, TN 38108-1011 – (901) 722-7100

www.matatransit.com

ATTACHMENTS FORM

Instructions: On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

Important: Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	UofM_IGFMatchLetters100521023	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	UofM_IGF_SupportLetters100521	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	UofM_IDCR_Fringe_Rate_Agreeme	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	StartCo_OrgDoc_FINAL100521024	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5		Add Attachment	Delete Attachment	View Attachment
6) Please attach Attachment 6		Add Attachment	Delete Attachment	View Attachment
7) Please attach Attachment 7		Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8		Add Attachment	Delete Attachment	View Attachment
9) Please attach Attachment 9		Add Attachment	Delete Attachment	View Attachment
10) Please attach Attachment 10		Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11		Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12		Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13		Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14		Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15		Add Attachment	Delete Attachment	View Attachment

Application for Federal Assistance SF-424

* 1. Type of Submission:

- ☐ Preapplication
☒ Application
☐ Changed/Corrected Application

* 2. Type of Application:

- ☒ New
☐ Continuation
☐ Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

04/29/2021

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: University of Memphis

* b. Employer/Taxpayer Identification Number (EIN/TIN):

620648618

* c. Organizational DUNS:

055688857

d. Address:

* Street1:

315 Administration Building

Street2:

* City:

Memphis

County/Parish:

Shelby

* State:

TN: Tennessee

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

38152-3370

e. Organizational Unit:

Department Name:

Vice President Research

Division Name:

Office of President

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

* First Name:

Laura

Middle Name:

L

* Last Name:

Wright

Suffix:

Title: Sponsored Programs Administrator

Organizational Affiliation:

University of Memphis

* Telephone Number:

901-678-3507

Fax Number:

* Email: llwright@memphis.edu

Application for Federal Assistance SF-424

* 9. Type of Applicant 1: Select Applicant Type:

H: Public/State Controlled Institution of Higher Education

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

* 10. Name of Federal Agency:

Department of Commerce

11. Catalog of Federal Domestic Assistance Number:

11.024

CFDA Title:

BUILD TO SCALE

* 12. Funding Opportunity Number:

EDA-HDQ-OIE-2021-2006827

* Title:

2021 Build to Scale Program

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

* 15. Descriptive Title of Applicant's Project:

Build 2 Scale: Innovation Growth Factor

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="968,562.00"/>
* b. Applicant	<input type="text" value="604,934.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="400,500.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="1,973,996.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- ☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .
- ☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- ☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed:

Budget Narrative File(s)

* **Mandatory Budget Narrative Filename:**

Add Mandatory Budget Narrative

Delete Mandatory Budget Narrative

View Mandatory Budget Narrative

To add more Budget Narrative attachments, please use the attachment buttons below.

Add Optional Budget Narrative

Delete Optional Budget Narrative

View Optional Budget Narrative

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

OMB Number: 4040-0013

Expiration Date: 02/28/2022

1. * Type of Federal Action: <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
--	--	--

4. Name and Address of Reporting Entity:
☒ Prime ☐ SubAwardee

 * Name:
 * Street 1: Street 2:
 * City: State: Zip:
 Congressional District, if known:

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency: <input style="width: 95%;" type="text" value="Department of Commerce"/>	7. * Federal Program Name/Description: <input style="width: 95%;" type="text" value="BUILD TO SCALE"/> CFDA Number, if applicable: <input style="width: 20%;" type="text" value="11.024"/>
8. Federal Action Number, if known: <input style="width: 95%;" type="text"/>	9. Award Amount, if known: \$ <input style="width: 60%;" type="text"/>

10. a. Name and Address of Lobbying Registrant:

 Prefix: * First Name: Middle Name:
 * Last Name: Suffix:
 * Street 1: Street 2:
 * City: State: Zip:

b. Individual Performing Services (including address if different from No. 10a)

 Prefix: * First Name: Middle Name:
 * Last Name: Suffix:
 * Street 1: Street 2:
 * City: State: Zip:

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

*** Signature:**
***Name:** Prefix: * First Name: Middle Name:
 * Last Name: Suffix:
Title: **Telephone No.:** **Date:**

Federal Use Only:
Authorized for Local Reproduction
Standard Form - LLL (Rev. 7-97)

BUDGET JUSTIFICATION

Proposal: “2021 Build to Scale Program (Venture Challenge): Innovation Growth Factor”

UofM PI: Stephanie Ivey

10/01/2021 – 09/30/2024

SF-424A	Year 1 (12 months)		Year 2 (12 months)		Year 3 (12 months)		Total	
Budget Categories	Federal	Match	Federal	Match	Federal	Match	Federal	Match
A. Personnel	\$89,647	\$93,645	\$90,699	\$96,098	\$91,782	\$98,624	\$272,128	\$288,367
B. Fringe Benefits	\$29,163	\$29,945	\$29,544	\$30,835	\$29,938	\$31,752	\$88,645	\$92,532
C. Travel	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D. Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E. Supplies	\$2,000	\$0	\$2,000	\$0	\$2,000	\$0	\$6,000	\$0
F. Contractual	\$90,000	\$90,000	\$120,000	\$120,000	\$150,000	\$150,000	\$360,000	\$360,000
G. Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
H. Other Costs	\$27,556	\$22,400	\$35,556	\$22,400	\$41,556	\$22,400	\$104,668	\$67,200
I. Total Direct Charges (sum of A-H)	\$238,366	\$235,990	\$277,799	\$269,333	\$315,276	\$302,776	\$831,441	\$808,099
J. Indirect Charges	\$51,034	\$51,097	\$42,785	\$52,267	\$43,302	\$53,472	\$137,121	\$156,835
K. Totals (sum of I-J)	\$289,400	\$300,587*	\$320,585	\$335,100*	\$358,577	\$369,747*	\$968,562	\$1,005,434*

*Includes third-party in-kind contributions described in Section K.

A. PERSONNEL

Salaries for all named personnel are based upon current UofM institutional base salary. All personnel budget calculations include an inflation rate of 3% beginning in year 2.

o Year 1: \$89,647

o Year 2: \$90,699

o Year 3: \$91,782

Federal share: \$272,128

Matching Share: \$288,367 (UofM)

(see UofM match letters: Sweigard-Ivey, Berisso, Robinson; Lasiecka- Windor; Townsend-Parkes)

PI: Dr. Stephanie Ivey (Project Lead PI) is a 9-month employee and the Herff College of Engineering’s Associate Dean for Research, Professor of Civil Engineering, and Director of the West TN STEM Hub and the Engineering Apprenticeship Program. She will provide overall project management, coordination, and reporting, including budget management. She will co-teach the Transformative Technologies course with Dr. Robinson. She will oversee the graduate students and will provide expertise related to

transportation engineering and program scale and delivery. Salary for 25% summer effort is requested in all years (Y1-Y3) of the project. She will cost share 12% of her academic effort in all project years.

Co-PI: Dr. Aaron Robinson, PhD is a 9-month employee and Associate Professor and Graduate Coordinator with the Department of Electrical and Computer Engineering, and Co-Director of the Engineering Apprenticeship Program. Dr. Robinson will participate in all project activities and will co-teach the course with Dr. Ivey. He will provide expertise related to electrical and computer engineering and program scale. Salary for 25% summer effort is requested in all years of the project. He will cost share 8% of his academic effort in all years.

Co-PI: Dr. Kevin Berisso is a 9-month employee and Associate Professor of Engineering Technology. Dr. Berisso will participate in all project activities and will present manufacturing and robotics demos for students in the program. He will serve as a mentor to student teams in his area of expertise. Salary for 25% summer effort is requested in all project years. He will cost share 8% of his academic effort in each year.

Co-PI: Dr. Alistair Windsor, PhD is a 9-month employee and Associate Professor in the Department of Mathematical Sciences and Director of the Institute for Intelligent Systems. Dr. Windsor will participate in all project activities, will work with Dr. Ivey to oversee the graduate student and develop a framework to track project data, and will assist with recruiting of STEM students as the program expands beyond engineering students. He will serve as a mentor to student teams in his area of expertise (dynamical systems and natural language processing). Salary for 25% summer effort is requested in all project years. He will cost share 8% of his academic effort in all years.

Co-PI: Troy Parkes, is a 12-month employee and Director of the University of Memphis Research Foundation (UMRF) Research Park. Mr. Parkes will lead industry partner coordination for the project and will work closely with StartCo. in accelerator expansion. He will provide mentorship to student teams related to innovation and entrepreneurship. He will also lead implementation and scale (with Dr. Ivey, Dr. Robinson, and StartCo.) of the kickoff and demo day programs each year. He will cost share 50% of his calendar effort in each project year.

UMRF Research Park Assistant: A 12-month full-time UMRP Research Park Assistant will be hired in Y1 of the project at an annual rate of \$45,000. S/he will be responsible for assisting Mr. Parkes with all project activities, and particularly those related to industry partner engagement and summer accelerators. Funds are requested for this position in each project year. It is expected that the University will demonstrate value of the position through program tracking data so that the position is sustained beyond the grant period.

Graduate Student: Salary for 9 academic year months and 3 summer months (50% effort) are requested for support of one graduate research assistant in each project year. The additional 50% effort each year will be provided as match. The graduate students will assist the research team with data collection, evaluation, and dissemination activities. The compensation will be at the rate of \$1,600 per month, for 20 hours per week, at 100% effort for this position.

Graphic Designer: A part-time temporary employee will be hired to provide graphic design services and develop all of the project materials to ensure consistent and professional design of all project curriculum, flyers, and resources. The graphic designer will provide 100 hours of design support in each project year at a rate of \$23/hour. All of the funds for this position will be provided by UofM as match.

Staffing Plan:

Name/Title	Annual Salary	Total Amount Charged to Project Year 1	Total Amount Charged to Project Year 2	Total Amount Charged to Project Year 3	Percentage of Dedicated Time (%)	Total Federal Share	Total Non-Federal Share (Matching)
Dr. Stephanie Ivey Project Lead PI	\$140,000	\$11,667	\$12,017	\$12,377	15.25/Y	\$36,061	\$51,297
Dr. Aaron Robinson, Co-PI	\$91,763	\$7,647	\$7,876	\$8,113	12.25/Y	\$23,636	\$22,690
Dr. Kevin Berisso Co-PI	\$88,080	\$7,340	\$7,560	\$7,787	12.25/Y	\$22,687	\$21,780
Dr. Alistair Windsor, Co-PI	\$100,727	\$8,394	\$8,646	\$8,905	12.25/Y	\$25,945	\$24,907
Troy Parkes Co-PI	\$85,000	\$42,500	\$43,755	\$45,088	50/Y	\$0	\$131,633
UMRF Research Assistant (TBH)	\$45,000	\$45,000	\$45,000	\$45,000	100/Y	\$135,000	\$0
Graduate Student	\$19,200	\$9,600	\$9,600	\$9,600	100/Y	28,800	\$28,800
Graphic Designer (TBH)	\$23/hour	\$2,300	\$2,300	\$2,300	varies	\$0	\$6,900

B. FRINGE BENEFITS

- o Year 1: \$ 29,163
- o Year 2: \$ 29,544
- o Year 3: \$ 29,938
- Federal share: \$ 88,645
- Matching Share: \$ 92,532

(see UofM match letters: Sweigard-Ivey, Berisso, Robinson; Lasiecka- Windor; Townsend-Parkes)

Fringe benefits are calculated on requested salary per the University's federally negotiated Rate Agreement with the Department of Health and Human Services (DHHS). The rates are as follows: 36.3% for regular faculty, full time professional & research personnel (salaried employees), 7.2% for temporary employees without insurance, and 1.1% for students & graduate assistants. Fringe Benefit rates are Fixed for the period 7/1/2020-6/30/2021 and are charged at actual rates as these expenses accrue. Fringe Benefits include: FICA, Retirement, Life Insurance, Unemployment Insurance, Health Insurance, Scholarship Benefits, Compensated Absences, Terminal Pay, Death Benefits and Workers' Compensation.

C. TRAVEL (None Requested)**D. EQUIPMENT (None Requested)****E. SUPPLIES:**

- o Year 1: \$ 2,000
- o Year 2: \$ 2,000
- o Year 3: \$ 2,000

Federal share: \$ 6,000

Matching Share: \$ 0

A total of \$2,000 in each project year is requested to support kickoff, Demo Day, and other activities for the project. Each semester will feature a kickoff and Demo Day event (2 semesters each year), along with four other special speaker/mentor activities (2 per semester). If in person, funds will support participant materials and sustenance. If COVID-19 conditions are such that an in-person event is not feasible, funds will instead be used to provide an engaging online experience through the use of platforms such as Lunchpool that allow participant interaction through varied settings.

F. CONTRACTUAL

o Year 1: \$ 89,099

o Year 2: \$ 118,799

o Year 3: \$ 148,498

Federal share: \$ 356,396

Matching Share: \$ 360,000 (See StartCo. match letter)

Start Co will be a subawardee under this project. Start Co is a venture architect company with expertise in the design process for launching early-stage technologies, business innovations, and economic solutions. Start Co will develop and teach entrepreneurial curriculum that will be integrated into the Herff College of Engineering Apprenticeship Program. In addition, Start Co will develop and teach a summer startup accelerator program designed to help student entrepreneurs take their ideas and concepts to the next level. The total costs associated for the subaward are \$356,396 for the 3-year project performance period. Start Co will also cost share additional efforts related to program and curriculum development, data collection services, promotion and marketing, as well as other resources such as workshop materials—valued at \$360,000. A separate budget and budget justification are included.

G. CONSTRUCTION (None Requested)

H. OTHER

o Year 1: \$ 27,556

o Year 2: \$ 35,556

o Year 3: \$ 41,556

Federal share: \$ 104,668

Matching Share: \$ 67,200

(see UofM match letters: Sweigard-Herff graduate student tuition; Dhaliwal-FIT space)

H.1 Participant Support Costs: Funds are requested to support 8 undergraduate student/participants in the summer accelerators to be held during the Summer of 2022, 12 participants in Summer 2023 and 15 participants in Summer 2024 at The University of Memphis. Each summer accelerator participants will receive \$2,000 stipends.

H.2 Space Rental: Space will be provided as match in the FedEx Institute of Technology (FIT) for four full days and four half days each year (two of each in fall and spring semester each year) for all project years. The FIT is a \$23 million, state-of-the-art facility like no other. The Zone is the premiere meeting space in the Mid-South, featuring a 186-seat tiered amphitheater that is complimented by a 70-seat high-definition presentation theater and 10 additional meeting rooms to accommodate events from 5 to 200.

Large projection screens, web cams, touch panel screens, a campus-wide wireless network, and video conferencing are just some of the cutting-edge features of this facility. Rental fees will be waived for use by the project at an in-kind cost of \$3500/full day and \$2100/half day (standard rental rates).

H.3 Tuition: Graduate student tuition is requested in Y1-Y3 in accordance with University policy. The tuition remission includes the current resident tuition rate of \$512/hour, university service fee of \$85/hour, and engineering course fee of \$45/hour.

I. TOTAL DIRECT CHARGES (sum of A-H)

- o Year 1: \$238,366
- o Year 2: \$277,799
- o Year 3: \$315,276
- Federal share: \$831,441
- Matching Share: \$808,099 (see UofM match letters)

J. Indirect Charges

- o Year 1: \$51,034
- o Year 2: \$ 42,785
- o Year 3: \$ 43,302
- Federal share: \$137,121
- Matching Share: \$ 156,835 (see UoM match letters)

Facilities and administration (F&A) costs are charged according to the University's federally negotiated rate for on-campus other sponsored activities of 35% of Modified Total Direct Cost (MTDC), per HHS agreement dated 04/14/2020. MTDC includes total direct costs exclusive of graduate students' tuition, capital equipment, participant support costs, and that portion of sub-award agreements over \$25,000. F&A has been calculated by applying the 35% rate described above to an MTDC base of \$391,733, totaling F&A costs for the project period of \$137,121.

The F&A costs of The University of Memphis' match has been calculated by applying the 35% rate described above to an MTDC base of \$448,099, totaling F&A costs for the project period of \$156,835.

K. Totals (sum of I and J)

- o Year 1: \$289,400
- o Year 2: \$320,585
- o Year 3: \$358,577
- Federal share: \$968,562
- Matching Share: \$964,934
- Third Party In-Kind Match: \$40,500

In-Kind Contributions: FedEx will donate personnel services valued at \$10,500 in each year of the project (see match letter). Green Mountain Technology will donate personnel services valued at \$3,000 in each year of the project (see match letter). Start Co's letter of commitment is included in this submission.

Total Project Cost requested from the sponsor is **\$968,962**. **Matching contributions of \$1,005,434** are \$964,934 from The University of Memphis, \$31,500 in-kind contributions from FedEx, and \$9,000 in-kind contributions from Green Mountain Technology. Matching Share Commitment Letters are attached.

BUDGET JUSTIFICATION

Date: 4-28-2021

Lead Institution: The University of Memphis, PI: Dr. Stephanie Ivey

Subrecipient: StartCo, PI: Ryan Ramkhelawan, VP of Venture Development

EDA Funding Opportunity Announcement: EDA-HDQ-OIE-2021-B2

Project Title [tentative]: Build 2 Scale: Innovation Growth Factor

Period of Performance: 3 years (36 months)

Proposed Start Date: 01 October 2021

BUDGET SUMMARY

SF-424A	Year 1		Year 2		Year 3		Total	
Budget Categories	Federal	Match	Federal	Match	Federal	Match	Federal	Match
A. Personnel	\$62,937	\$0	\$83,916	\$0	\$98,486	\$0	\$245,339	\$0
B. Fringe Benefits	\$18,881	\$0	\$25,175	\$0	\$37,878	\$0	\$81,934	\$0
C. Travel	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D. Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E. Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
F. Contractual	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G. Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
H. Other Costs	\$0	\$90,000	\$0	\$120,000	\$0	\$150,000	\$0	\$360,000
I. Total Direct Charges (Sum of A-H)	\$81,818	\$90,000	\$109,091	\$120,000	\$136,364	\$150,000	\$327,273	\$360,000
J. Indirect Charges	\$8,182	\$0	\$10,909	\$0	\$13,636	\$0	\$32,727	\$0
K. Totals (Sum of I-J)	\$90,000	\$90,000	\$120,000	\$120,000	\$150,000	\$150,000	\$360,000	\$360,000

A. Personnel

PI: Ryan Ramkhelawan, VP of Venture Development, will serve as the lead project investigator and will provide overall project management, coordination, reporting as well as financial management. He will commit approximately 15% of his calendar time in all years of the project.

Co-PI: Leann Grabski, Director of Programs, will be responsible for program design and implementation. She will commit 25%, 40% and 50% of her calendar year effort to the project in year 1, 2 and 3, respectively.

Logistic Coordinator (TBN): A Logistic Coordinator will be responsible for program logistics. The time commitments of the Logistic Coordinator are 15% in year 1; 30% in year 2; and 40% in year 3.

Mentors: Four mentors will be hired at a rate of \$12/ hour and will be responsible for specialty content and mentorship. Each mentor will work approximately 99 hours in year 1; 122 hours in year 2; and 150 hours in year 3.

o Year 1: \$62,937
o Year 2: \$83,916
o Year 3: \$98,486
Federal share: \$245,339
Matching Share: \$0

Staffing Plan

Name/Title	Annual Salary	Total Amount Charged to Project Year 1	Total Amount Charged to Project Year 2	Total Amount Charged to Project Year 3	Percentage of Dedicated Time (%)	Total Federal Share	Total Non-Federal Share (Matching)
Ryan Ramkhelawan, Lead PI	\$202,300	\$30,345	\$30,345	\$30,345	Y1-Y3: 15	\$35,420	\$0
Leann Grabski, Co-PI	\$79,620	\$19,905	\$31,848	\$39,810	Y1: 25; Y2: 40; Y3: 50	\$14,679	\$0
Logistic Coordinator (TBD)	\$52,880	\$7,932	\$15,864	\$21,152	Y1: 15; Y2: 30; Y3: 40	\$15,292	\$0
Mentors	\$25,200	\$4,755	\$5,859	\$7,179	varies	\$6,750	\$0

B. Fringe Benefits

Fringe benefits are calculated on requested salary at 30% for all employees and are charged at actual rates as these expenses accrue. Fringe Benefits include Retirement, Life Insurance, Unemployment Insurance, Health Insurance, and Workers' Compensation.

- o Year 1: \$ 18,881
- o Year 2: \$ 25,175
- o Year 3: \$ 37,878
- Federal share: \$ 81,934
- Matching Share: \$ 0

C. Travel (None Requested)

D. Equipment (None Requested)

E. Supplies (None Requested)

F. Contractual (None Requested)

G. Construction (None Requested)

H. Other Direct Cost

- o Year 1: \$ 0
- o Year 2: \$ 0
- o Year 3: \$ 0
- Federal share: \$ 0
- Matching Share: \$ 360,000

StartCo in-kind matching contribution comprised of additional efforts related to program development and implementation, curriculum development and assets (e.g., syllabus, slides, workshop materials, etc.), data collection services, metrics and reporting, marketing, promotional support and accelerator programs.

I. Total Direct Charges

- o Year 1: \$ 81,818
- o Year 2: \$109,091
- o Year 3: \$136,364
- Federal share: \$327,273
- Matching Share: \$360,000

J. Total Indirect Direct Charges

Start Co does not have a current negotiated (including provisional) rate and is electing to charge the de minimis rate of 10%.

- o Year 1: \$ 8,182
- o Year 2: \$10,909
- o Year 3: \$13,636
- Federal share: \$32,727
- Matching Share: \$ 0

K. Totals (sum of I and J)

- o Year 1: \$ 90,000
- o Year 2: \$120,000
- o Year 3: \$150,000
- Federal share: \$360,000
- Matching Share: \$360,000

1. Project Description and Summary



1-a. Executive Summary

Project Title: *Innovation Growth Factor*

Challenge Type: Venture Challenge - Scale

Through the 2021 U.S. Economic Development Administration *Build to Scale* Program, the University of Memphis (UofM) will create a distinctive model for preparing exceptional STEM talent through highly effective partnerships that leverage strengths to build an ecosystem of innovation and result in a sustainable model that supports next generation industry leaders.

The proposed **Innovation Growth Factor (IGF)** project integrates an entrepreneurial acceleration model into an innovative course that combines problem-solving, cutting-edge technologies, and research practices with dynamic work-based learning experiences to develop local talent that is ready to design the next innovations and tackle the challenges of tomorrow. The UofM is especially well suited to lead this initiative because of its diverse student body, faculty with expertise in research and workforce development, and its Research Park that fosters innovative engagement with industry. Our core partner in this project, Start Co., brings extensive experience and a strong track record of success in venture architecture and acceleration.

The city of Memphis is at the cusp of a digital transformation that will accelerate development and deployment of advanced technologies, create an environment for significant expansion of economic opportunities and high-quality job growth, and fundamentally shift the demand for talent in the community to that for a tech-savvy, highly skilled, and creative workforce. Memphis is an outstanding setting because of the focus on and investment in infrastructure that has allowed an entrepreneurial ecosystem to flourish. IGF will scale existing programs to build on local strengths, strategically creating a pipeline of talent for tomorrow's workforce.

1-b. Organizational Mission

The UofM is an urban public research university preparing students for success in a diverse, innovative, global environment. The UofM mission is to provide the highest quality education to our students by focusing on research and service benefiting local and global communities. Our core values include collaboration, diversity and inclusion, student success, and innovation, all of which are central to the proposed project.

The lead entities within UofM for this project are the Herff College of Engineering (HCOE) and the University of Memphis Research Foundation Research Park (UMRP). HCOE is dedicated to impacting quality of life in our region, country, and world through conducting cutting-edge research and developing a robust talent pipeline prepared to solve tomorrow's challenges. The UMRP was created to amplify opportunity and establish a center of creative empowerment and emerging innovation within the UofM ecosystem.

Start Co., is a venture architect firm supporting partners with design processes for launching early-stage technologies, business innovations, and economic solutions. Start Co. works with startups, corporations, governments, universities, and other organizations looking to build data and technology solutions, new business models, and civic innovations and leverage the power of digital cities, venture development expertise, investment, and capital connectivity.

HCOE, UMRP, and Start Co.'s partnership creates a unique opportunity and strong foundation for scaling and sustaining **Innovation Growth Factor**, leveraging the expertise of each entity to grow a vibrant innovation ecosystem.

2. Ecosystem Resources and Assets

2-a. Project Location, Region, and Community

The primary service area for the proposed project is Shelby County, Tennessee (FIPS 47157, TN District 9). The University of Memphis (UofM) draws students from much of the Metropolitan Statistical Area as well, which includes

the seven surrounding counties from three states: Crittenden County, AR (FIPS 05035, AR district 1), Desoto County, MS (FIPS 28033, MS District 1), Fayette County, TN (FIPS 47047, TN District 8), Marshall County, MS (FIPS 28093, MS District 1), Tate County, MS (FIPS 28137, MS District 1), Tipton County, TN (FIPS 47167, TN District 9), and Tunica County, MS (FIPS 28143, MS District 2). The proposed effort is of particular poignancy to the regional community, given the 18.8% poverty rate and underproduction of STEM talent in the greater Memphis area (1).

Shelby County is the most populous county in the state of Tennessee with over 900,000 residents. Racial diversity is high, with 54% African American, 40% Caucasian, and nearly 7% Hispanic or Latino residents (2). This diverse county boasts a number of unique opportunities for STEM innovation. Home to three Fortune 500 companies, Memphis is America's transportation and logistics hub. Approximately 40% of all freight shipped in the U.S. passes through Memphis via the Fed Ex hub, the Port of Memphis, Interstates 40 and 55, and the many intermodal terminals that serve the area. This world-class freight access attracts manufacturers and distributors alike, creating new opportunities for STEM innovators in Memphis' core industries such as logistics, transportation, agriculture, biosciences, and emerging areas of strength in robotics and digital and information technologies.

UofM STEM majors will be the primary participants served by the project. The UofM awarded more than 4,500 degrees in 2019-2020, and its highly productive faculty have developed more than 40 diverse undergraduate and graduate programs that are ranked in the Top 25 nationally. The UofM is a diverse urban campus with 38% of students being classified as Black or African American. In the 2019-2020 academic year, 24.8% of graduating U of M STEM undergraduates were classified as Black or African American (UofM OIR), nationwide in 2017-2018 the figure was 6% (IPEDS Table 322.30). The UofM has invested heavily in its faculty, staff, and infrastructure to increase research activity and innovation while simultaneously expanding resources that support increased retention and graduation of its diverse students.

Workforce development in Shelby County is greatly enhanced by the presence of the UofM and the UMRP. The UMRP works hand in hand with both the academic community at UofM and local, national, and global industry. The Research Park is home to innovation labs for multiple private sector companies – including everything from start-ups to Fortune 500 companies. Additionally, the UofM in partnership with the Greater Memphis Chamber has recently announced a new economic development partnership dedicated to the growth of the Memphis economy. This partnership will accelerate efforts to attract and grow companies and to position Memphis for more high-quality job opportunities.

2b. Regional Opportunity

In addition to the UMRP, Shelby County and the City of Memphis have developed significant resources for entrepreneurship that provide seamless entry to modern international markets. StartCo (the core partner in this proposal), Epicenter, Sage Business Advisors, and Wolf River Angels are four local organizations that foster startups and provide access to experts, capital, networks, and the customer base necessary to thrive in competitive markets. ZeroTo510 and MB Venture Partners are geared toward Memphis' thriving medical device ecosystem, helping entrepreneurs to navigate patenting and FDA clearance; AgLaunch offers a similar service to startups in agricultural technology; Innova straddles the space between biosciences and agricultural technology. The International Business Innovation Association and Apto Global help entrepreneurs to think globally and to access international markets and mentorships that bring innovative ideas from the incubation stage to the world stage. Because of the UofM's existing partnerships with all of these organizations, this project will be accelerated and enhanced by access to this world-class array of resources.

Exciting opportunities for STEM entrepreneurs are developing through public-private partnerships in Memphis. Of special note is the Digital City, currently in the design phase as a collaboration between Start Co., UofM, the City of Memphis, the Downtown Memphis Commission, and Big River Partners. The Digital City is a \$1.4B mixed-use development in downtown Memphis that will connect the entire neighborhood and building structures with fiber infrastructure, devices, systems and technology for data collection and analysis (3). This Digital City project is a result of an innovation-driven economic development plan that will create 2,500 new jobs and will attract \$100M in new venture investment, driven by 40-50% minority and women participation. The Digital City is expected to support 5,000 business, providing a series of cutting-edge opportunities for students served by this project.

The proposed project is closely aligned with the Memphis Area Association of Governments Comprehensive Economic Development Strategy (CEDS) that recognizes transportation, manufacturing, bioscience, agriscience, and electronics as key or target industries crucial to the Memphis-area economy (4). The CEDS also identifies labor force challenges as the primary issue that is restricting economic growth, with a significant underproduction of qualified talent for local opportunities – particularly in STEM disciplines. The pandemic has exacerbated this problem, particularly in underserved communities where lack of access to technology and internet service, financial crises, and health issues posed challenges for many, including many STEM students at the UofM. Thus, the proposed project aligns with CEDS and leverages local investments to accelerate expansion of an innovation ecosystem within the Greater Memphis Area that connects diverse members of the community to valuable and engaging learning experiences.

The unique setting, workforce challenges, partners, and current momentum within the UofM and the Greater Memphis Area provide an unprecedented opportunity to create an outstanding workforce development program that grows an innovation-centric economy and empowers the workforce of tomorrow. The time is right to capitalize on the numerous initiatives targeting economic growth, opportunity, and innovation ecosystem expansion in our region.

3. Proposed Solution

3a. The Solution

Innovation Growth Factor (IGF) will combine strengths from two existing programs to scale and sustain a **novel approach to expanding an innovation ecosystem and developing a pipeline of exceptionally prepared STEM talent capable of addressing the rapidly evolving needs of the technical sector** in the Greater Memphis area. The proposed project will attract diverse students and will provide them with unique training that develops high-demand skillsets and increases economic opportunity – both for the individuals and our community.

While STEM students receive strong technical education through academic programs, there is typically limited connection to industry, real-world problems, and development of entrepreneurial mindset. HCOE has begun addressing this issue through a new Transformative Technologies in Engineering course and work-based learning experience, however; the entrepreneurial component is missing. Start Co. has a significant track record of accelerating innovation and company development, but many of their participants come from outside the local area and there is limited visibility with the next generation of STEM talent. **This project will combine and scale two successful programs – the Engineering Apprenticeship in Transformative Technologies (EATT) and Start Co.’s accelerator model – to remove existing barriers and stimulate entrepreneurship, company growth, and job creation.**

The EATT began in 2020 and accepted its first cohort of students in Spring 2021. Currently there are 23 students from the HCOE (juniors, seniors, and graduate students) enrolled in the course and working in related internship placements along with 20 partnering companies, who teach classroom sessions, serve as team project mentors, and provide paid internships. The program centers on the integration of classroom sessions on emerging technologies, innovative work-based learning opportunities designed in partnership between industry and faculty, guided research, and student-based solutions to innovation challenges proposed by industry stakeholders.

Start Co.’s accelerator model includes a **pre-accelerator** that develops business knowledge, problem discovery and research, and community and network building while working with industry mentors. The next phase of the model is a **concept accelerator** that integrates lean startup content, prototyping and concept testing, and patent/legal strategy to move ideas along the path to reality. The final component is **post-accelerator support** that provides continued mentorship and community building through alumni retreats and events.

By leveraging the successes and structure of these individual programs, the combined model will address barriers that currently limit expansion of our local innovation ecosystem and will allow scale that leads to sustained growth of entrepreneurship – particularly in STEM areas. The pre-accelerator will be imbedded into the EATT course, with promising teams moving on to the summer accelerator and then post-acceleration support. The IGF program model is depicted in Figure 1.

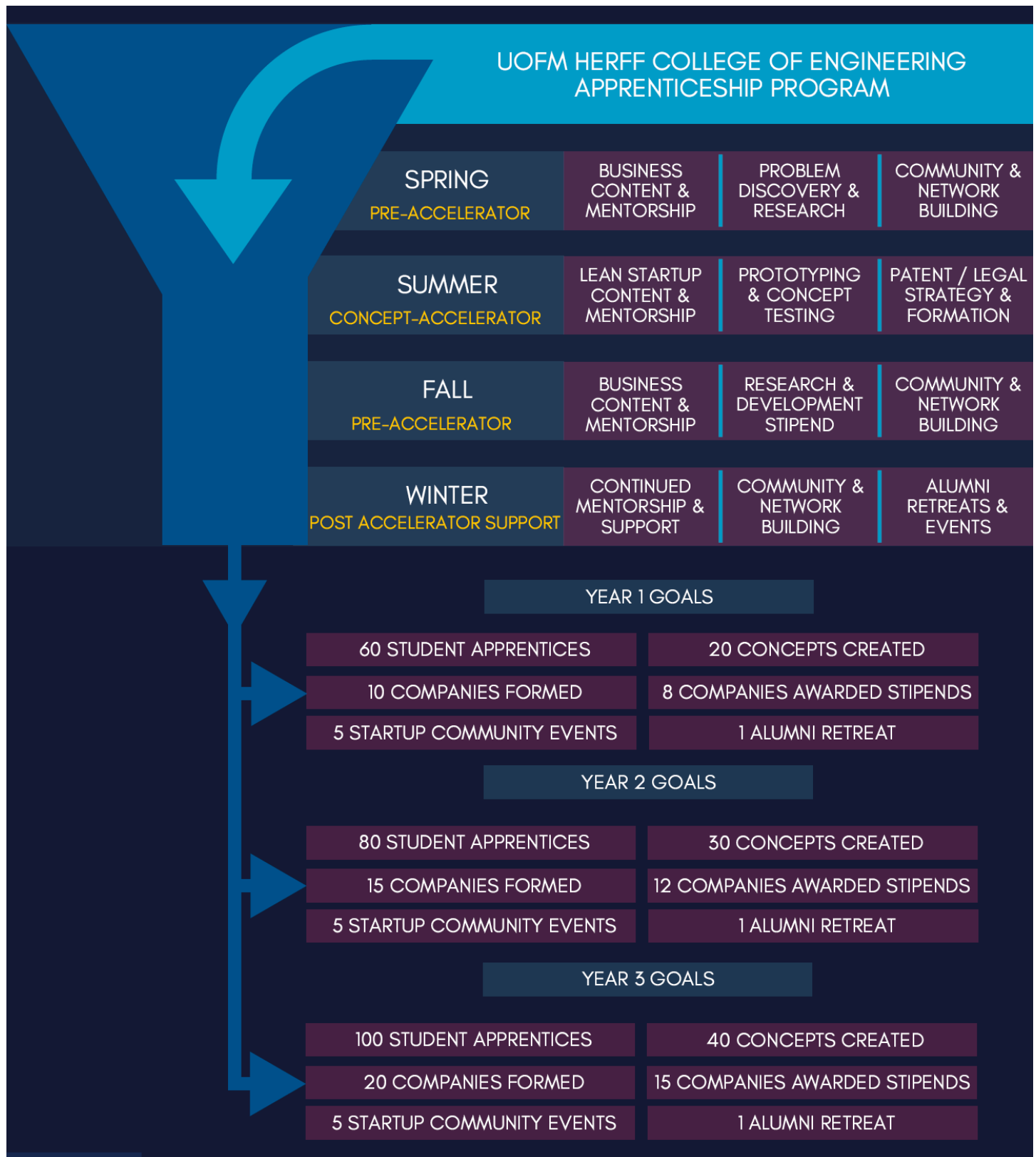


Figure 1. IGF Program Model Combining EATT and Start Co. Acceleration Platform

3b. Achievability

Innovation Growth Factor (IGF) is a cross collaboration between HCOE's Engineering Apprenticeship Program and Start Co's acceleration platform. The combination creates a sustainable innovation ecosystem that will help propel the region to be one that is sought-after for development, growth, and scaled reproductions of new innovations. The

proposed project is achievable because both programs have a track record of demonstrated impact, a comprehensive data collection and evaluation structure that has allowed data-driven improvements, the vested interest of partnering organizations in creating a sustained model of growth, and the established collaborative relationships that are central to project success.

EATT demonstrated success from the outset, **tripling** participation goals with its first cohort – both in terms of students and industry partners. The program engages students from every engineering major in the college and offers the only upper-division interdisciplinary technical elective, which required agreement from curriculum committees in all five majors. **After taking the course, students report a 40% average increase** in familiarity with applications of transformative technologies in varied engineering contexts, and **more than 60% increase** in exposure to industry professionals and career paths, experience in conducting independent research, ability to solve open-ended problems, and ability to work in multidisciplinary teams. **95% of students indicated positive impact in preparation for working in industry**, ability to network with professionals, and ability to understand how a solution in one setting could transfer to another. Additionally, **94% of students indicated they would recommend the course to peers**.

Start Co. has grown **over 1,000 jobs, invested or helped companies secure capital over \$70M, supported 300+ companies, and helped grow their revenue to over \$100M collectively**. Over the years the mission of Start Co. has expanded to include the creation and managing of investment funds and angel networks; portfolio management of accelerator companies; corporate innovation for both public and private sector organizations and equity and inclusion initiatives that will help close the funding gap for minority and women led companies.

The team assembled to lead this project has a diverse range of expertise that will ensure the proposed scaling approach and timeline are achievable. All team members have significant experience in successful program development, implementation, and scale. **Dr. Stephanie Ivey** (PI) is Associate Dean for Research in the Herff College of Engineering and Director of the Southeast Transportation Workforce Center (SETWC) and West Tennessee STEM Hub (Hub). She has expertise in transportation engineering and STEM/transportation education research and workforce development. She also directs the EATT program. She is the founding director of both the Hub and SETWC, and not only sustained but expanded programming and activity beyond the initial grant period for both centers (for example, initial grant funding ended for the Hub in 2014, and program impact has grown by more than 300% in terms of participants, corporate partners, and sponsorship).

Troy Parkes is the Director of the UMRP and has expertise in entrepreneurship, executive management, venture capital and early-stage high growth technology start-ups. He has built the UMRP from an idea into a successful economic development driver that has engaged with over 40 local, national and international companies over the course of its first year of operations that will produce over 510 jobs and \$9.2 Million Cap Ex for the State of Tennessee.

Dr. Aaron Robinson is an Associate Professor of Electrical and Computer Engineering, with expertise in signal processing, electro-optics, and transportation education research. He is Co-Director of the EATT program with Dr. Ivey. **Dr. Kevin Berisso** is an Associate Professor of Engineering Technology, and has expertise in RFID, robotics, and STEM workforce development. **Dr. Alistair Windsor** the Director of the Institute for Intelligent Systems (a Center for AI research and innovation), the Associate Director of the West TN STEM Hub, and an Associate Professor of Mathematical Sciences. He has expertise in project evaluation, data analysis, and STEM education.

Ryan Ramkhelawan, PI for Start Co., is VP of Venture Development. He oversees investment opportunities for internal and corporate accelerators as well as teaches lean startup principles and acts as an executive coach to new startup CEO's. He has more than 15 years of experience in clinical and medical innovation and has invented and launched nine medical devices, raised over \$5 million in funding for his own ventures and has successfully exited one company. In addition, he has developed and launched multiple startup accelerators and entrepreneurial programs for corporates, civic organizations, universities and philanthropic groups across the country.

3c. Stakeholder Groups

There are three important stakeholder groups for this project: UofM students, industry professionals, and the Greater Memphis Community.

- **Student participants** are recruited to the program through email outreach to multiple department lists and student organizations, word of mouth from previous students, and an info session/workshop held in the semester prior to each new cohort entering the program. The number of student participants will increase each year with 60 targeted in Y1, 80 in Y2, and 100 in Y3. These numbers represent two cohorts of students per year, one each in the fall and spring semesters. In Y1, the program will target students from the HCOE (all majors – biomedical, civil, electrical, computer, and mechanical engineering and engineering technology), whereas in Y2 and Y3 the program will target students from all STEM disciplines at the UofM (engineering plus mathematical sciences, physics, earth sciences, information technology, computer science, chemistry, and biology).
- **Industry Professionals** will be recruited through the extensive industry connections and existing partnerships with the UMRP, the West TN TEM Hub, SETWC, and Start Co. It is anticipated that a minimum of 40 industry partners will be engaged in Y1, 50 in Y2, and 60 in Y3 to serve as guest speakers/site visit hosts, mentors to student teams, and mentors to individual apprentices.
- **The Greater Memphis Community**, including elected officials, industry leaders, and the general public will be engaged through a variety of dissemination activities. Media releases and invitations will be issued throughout the project period, particularly for special events each semester. A kick-off event will be hosted with each new cohort, special mentoring activities will be held, and a Demo Day event will be hosted at the end of each semester where student teams will present their innovations. We will develop engaging profiles and success stories that will be shared through media outlets and the project website and will present at relevant conferences to share the model, best practices, and lessons learned. Conference venues will allow us to expand impact beyond our local community to other parts of the state and country as well. It is anticipated that the project will reach an extended audience of 500 in Y1, 2,000 in Y2, and 5,000 in Y3 with these activities.

4. Partnerships

While the scope of work for this project will be described in terms of individual roles, all project planning and deployment tasks are collaborative in nature. It is essential that both university and industry stakeholders contribute to the program scale and evolution.

University of Memphis Faculty and Graduate Students

The faculty team from the University of Memphis, including PI Stephanie Ivey (civil engineering) and Co-PIs Kevin Berisso (engineering technology), Aaron Robinson (electrical and computer engineering), and Alistair Windsor (mathematical sciences), and the graduate student assistant (GA) engaged in the project will be responsible for the following:

- Provide overall project coordination; coordinate and host advisory meetings
- Lead implementation efforts for the overall program; Lead the EATT (Ivey and Robinson); Serve as mentors in EATT (Berisso and Windsor)
- Lead assessment with participants (pre/post surveys for students and industry partners)
- Support the UMRP in employer engagement
- Support UMRP and Start Co. in hosting the kick-off, special events, and Demo Days each semester
- Lead IGF evaluation and tracking; develop success stories for program outcomes

UMRP

Co-PI Troy Parkes will lead the UMRP efforts related to the proposed project with support from a Research Park Assistant.

- Identify and invite project Advisory Board Members
- Support scaling efforts for overall program
- Lead engagement with employers and entrepreneurial accelerators to place students in work-based learning experiences
- Lead Innovations Showcase development and implementation
- Assist with course development (identifying relevant topics, speakers, etc.)

- Assist in program tracking and evaluation (Lead annual student and employer focus groups) and development of success stories to highlight program outcomes

Start Co.

- Provide guidance and input in overall program development through engagement in advisory board and regular project team meetings; Deliver pre-accelerator, summer accelerator, and post accelerator activities.
- Assist with industry partner recruitment.
- Track impact of acceleration platform
- Lead kick-off and Demo Day events
- Assist with media releases and dissemination

Industry Partners

While FedEx and Green Mountain Technology have provided specific letters of support for this project, numerous industry partners will commit time and resources as follows:

- Serve as guest speakers in EATT course
- Serve as mentors to student teams
- Provide ‘challenge project’ statements for student teams to solve
- Employ students in related internship experiences
- Provide other resources to support program activities (such as sponsoring Demo Day events, etc.)

The collective expertise and experience of the project partners creates a unique and incredibly valuable program for students that allows them to learn through immersion in real-world problems, interaction with diverse industry professionals, and engagement in multidisciplinary teams. This project is feasible because of the strong relationships and commitment between the partners.

Collectively, we have a long history of successful industry-academia partnership. For example, the West TN STEM Hub initiated a Steering Committee in 2012 with 20 industry, academic, and community partners. The Committee still meets quarterly and collaboratively develops all Hub programs and initiatives and has grown to include more than 50 partners. UMRP reports to the University of Memphis Research Foundation and University of Memphis Auxiliary Services Foundation which is comprised of industry-academia leaders. In 2019, the UMRP created an advisory board which is made up of industry executives from FedEx, United Healthcare and other Fortune 500 companies to assist in its strategic planning for growth and success.

Partnerships are also at the core of Start Co.’s model and successes, with numerous partners including the UofM, Memphis Area Transit Authority, the City of Memphis, FedEx, Service Master, Front Door, and Indigo Ag supporting innovation initiatives and acceleration programs led by Start Co. As an example, Start Co. is spearheading the Digital City initiative that is a first-of-its-kind, digitally connected community that will serve as a testbed for human-centered smart city innovation. Public, private, philanthropic, and non-profit partnerships are central to this effort, and are working to co-create solutions to shared problems through mobility, last mile, and digital life task forces (3).

5. Measurable Goals and Feasibility

Goals for this project were developed considering participant communities as well as collective definitions of success. Baseline data from current programs allowed the team to set aggressive but feasible targets for each goal. Table 1 defines project goals and the associated benchmarks, along with expected outputs and outcomes for both the apprenticeship and accelerator components. Year three figures represent stretch goals for the project and are aspirational to promote project sustainability. Figures 2 and 3 provide an illustrative example of data collection from accelerator activities. Our project will employ a data and client management system to track metrics in a machine-readable format. The system that we will use is Salesforce, as this is used by the Southeast Transportation Workforce Center and the West TN STEM Hub and will be made available to this project as well since the PI (Ivey) has the license.

Table 1. Innovation Growth Factor (IGF) Goals

Goals	Benchmark	Output	Outcome	Measurement Instrument(s)
1. Scale the IGF program (ETAA with pre-accelerator).	S2021: 23 students	Y1: 60 Y2: 80 Y3:100	The number of students completing IGF will grow significantly such that a culture of innovation becomes part of the STEM ecosystem at the UofM. attendance records	Course rosters;
2. Increase STEM student competencies related to problem-solving, research, and entrepreneurial thinking.	S2021: ETAA course survey data from student participants	Statistically significant positive improvement in self ratings from pre to post assessment Student concepts created: Y1: 20 Y2: 30 Y3: 40 Companies formed/awarded stipends: Y1: 10/8 Y2: 15/12 Y3: 20/15 Post-accelerator activity (community events/retreats): Y1: 5/1 Y2: 5/1 Y3: 5/1	Students completing IGF will demonstrate increased workforce and entrepreneurial readiness. The Memphis innovation ecosystem will be enhanced by viable market entries from the IGF program.	ETAA Pre/post course surveys (students) Demo Day feedback from audience Rosters for summer accelerators, post-accelerator activity
3. Create a sustainable innovation ecosystem through industry/academia collaboration	S2021: 20 industry partners for ETAA F2021: \$13,500 committed to project from corporate sponsors	Number of Companies Engaged: Y1: 40 Y2: 50 Y3: 60 Percentage of repeat industry participants: Y1: 40% Y2: 60% Y3: 80% Sponsorship Growth: Y1: \$13,500 Y2: \$30,000 Y3: \$75,000	Companies recognize the value of the IGF program for fostering innovation and strengthening the STEM pipeline.	ETAA Pre/post course surveys (employers) Demo Day feedback from audience Industry participant records (guest speakers, mentors, sponsors)

DATA COLLECTION

The data collected is used to ensure quality of program content and to track advancement of each participating company. Company specific data will be collected through 1:1 interviews and participant surveys. In addition, program participation will be aggregated and shared in the end of program retrospective. Example data is shared below

EXAMPLE ACCELERATOR DATA

COHORT PARTICIPATION

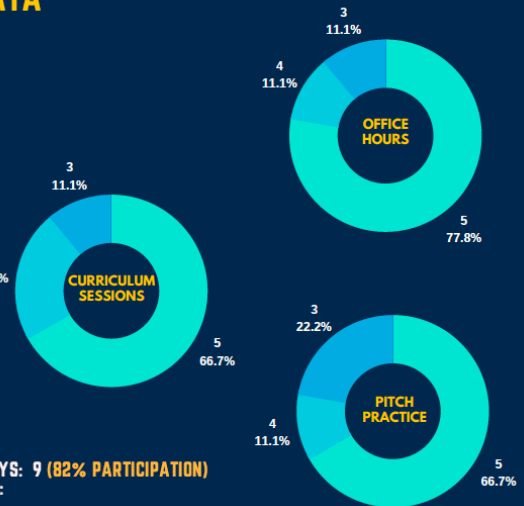
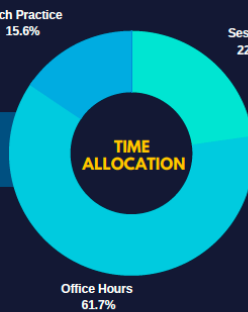
89%
SESSIONS

74%
OFFICE HOURS

80%
PITCH PRACTICE

100%
EVENTS

83.5
COLLECTIVE HOURS



SURVEYS: 9 (82% PARTICIPATION)
SCALE:

- 1 = NOT USEFUL
- 5 = VERY USEFUL

Figure 2. Example Start Co. Accelerator Program Data Collection

IN-PROGRAM DATA (AUDIENCE FEEDBACK FROM DEMO DAY)

*COMPLETED VOLUNTARILY BY DEMO DAY AUDIENCE VIA ANONYMOUS SURVEY

1. SCALE OF 1-5 (RATE HOW WELL DID YOU UNDERSTAND)

- PROBLEM THE COMPANY IS ADDRESSING
- THE SIZE OF THE PROBLEM
- THE SOLUTION AND BENEFITS
- THE COMPETITION
- THE MARKET SIZE
- THE BUSINESS MODEL
- PROGRESS MADE SO FAR
- THEIR ASK

2. DID YOU FIND THE PRESENTATION ENGAGING

- A: VERY ENGAGING
- B: IT WAS OK
- C: NOT AT ALL

3. SCALE OF 1-5 (1 BEING THE LOWEST AND 5 THE HIGHEST)

- HOW CONFIDENT DO YOU FEEL ABOUT THE TEAM TAKING THIS COMPANY TO MARKET

4. ANY ADDITIONAL FEEDBACK YOU WOULD LIKE TO PROVIDE TO THIS TEAM. ALL FEEDBACK WILL BE SHARED ANONYMOUSLY.

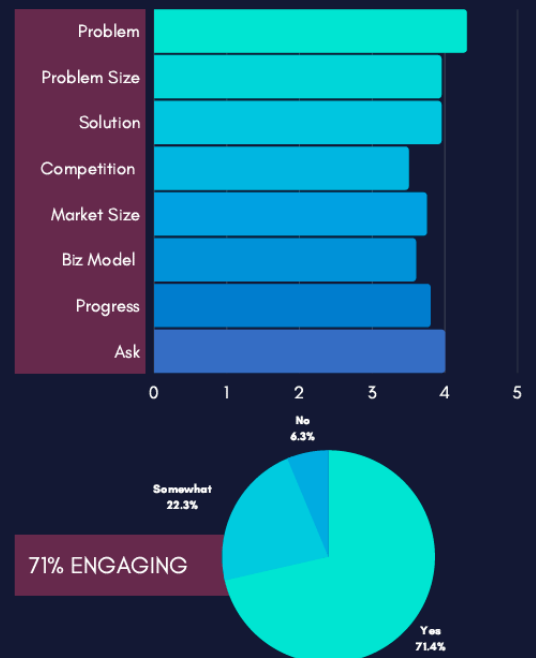


Figure 3. Example Start Co. Accelerator Program Audience Data Collection

6. Sustainability Plan

The proposed project was carefully designed through collaboration between UofM faculty, UMRP staff, Start Co., and local employers. The project arose from long-term collaborations between the partnering entities and discussions focused on addressing local barriers to expansion of an innovation ecosystem. The UMRP's existing connections with numerous employers and local incubators remove a primary barrier from the project - that of building relationships with industry partners – and will allow the rapid expansion of the IGF program. The Advisory Board will be filled via connections from Co-PI Parkes (UMRP), PI Ivey (West TN STEM Hub/SETWC) and Start Co. PI Ramkhelawan. Their leadership of these organizations provides access to numerous STEM employers of all sizes and provides a solid platform for expansion and sustainability. The project timeline is aggressive but feasible given the expertise and institutional and local knowledge of the project team and the established programs that will be combined for scale.

The data-driven approach that the project team will take to documenting outcomes, addressing any issues that arise with the model as it is scaled that limit potential for success, and demonstrating program impacts are key to the program's sustainability. Potential barriers include failure to appropriately manage the program experience as it is scaled, which could result in industry partners and students having a less than positive experience. Positive perceptions of the program and its value to stakeholders are essential for growth and sustainability. The diverse team of faculty from multiple STEM disciplines, the Director of the UMRP, and Start Co. PI each have uniquely relevant experience in successful program development, evaluation, and scale. It is expected that this collective expertise will enable scale to successfully occur. The continuous feedback loop between industry partners and the project team facilitated by the UMRP will also help to identify any potential roadblocks early on so that these may be addressed appropriately.

It is anticipated that post-award period operations will not be simply maintained at grant-funded levels but continue to expand to include more students and industry partners. The demonstrated success and documented impacts will provide the foundation for continued growth and investment. It is also expected that a model of *students as a service* will emerge whereby employers look to university students as a resource to address specific technical challenges as well as research and innovation needs. Industry partners will recognize the talent at the UofM, understand the value of engaging in collaborative workforce development, and will continue to invest in students and the UofM early so that the pipeline of STEM talent continuously adapts to evolving needs. It is also anticipated that a culture of innovation will be enhanced at UofM that expands entrepreneurial activity in the Greater Memphis Area. The success of the IGF program will lead to a long-lasting partnership between industry and academia in the Greater Memphis community that fosters economic vitality, technological innovation, and an innovative entrepreneurial ecosystem.

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Project Narrative File(s)

*** Mandatory Project Narrative File Filename:**

To add more Project Narrative File attachments, please use the attachment buttons below.