Ohio University Innovation Strategy
Cycle 2 Request for Proposals

Information and Networking Sessions: September 19 and 26, 3:30-5:30 pm, Multipurpose Room in the Multicultural Center, 2nd Floor Baker Center

Collaborative Projects Workshop: October 3, 9:00-11:00 am, Multipurpose Room in the Multicultural Center, 2nd Floor Baker Center. RSVP required, research@ohio.edu. Limited to 50 attendees. For more information, http://www.ohio.edu/research/innovationstrategy.cfm.

Letter of Intent Deadline: 4:00 pm, October 13, 2016
Pre-Proposal Deadline: 4:00 pm, January 12, 2017
Full Proposal Deadline: 4:00 pm, May 18, 2017
Planning Grant Proposal Deadline: 4:00 pm, May 11, 2017

Program description: The Ohio University Innovation Strategy (OUIS) provides funding to support interdisciplinary/multi-planning unit team projects. These projects must advance innovation in areas drawn from an identified set of focused niches (Appendix 1 for list of niches). Activities that can be supported by an OUIS grant include research, scholarship, creative activity, instruction, and institutional operations.

The structure of this RFP is intended to incentivize collaborations that are interdisciplinary and that span across college and planning unit boundaries. This goal reflects the fact that these challenges very often benefit from interdisciplinary approaches. This program should not be interpreted as a devaluation of traditional disciplinary work, but rather an effort to leverage the university’s full spectrum of assets and address an underdeveloped mode of collaborative engagement.

Who can apply: Faculty and staff at any Ohio University campus are eligible to participate as a Principal Investigator (PI) or Co-Investigator (Co-I). Proposals must be submitted by PI/Co-I teams that are interdisciplinary and drawn from more than one planning unit. For faculty: your planning unit is your college (or school in the case of the Voinovich School) or regional campus. A single individual must be identified as the PI. Students can participate as Co-Is.

Co-Is outside Ohio University. Projects in partnership with individuals or organizations outside the university are encouraged if the partnership enhances the value of the proposed activity. Funding can be allocated to external partners under this program but will require a high level of justification. An individual external to the university whose participation is integral to the project, and who has the capacity to accept the responsibility and authority of Co-Investigator status, can be designated as a Co-I in the LOI and later proposal stages. Questions regarding designation of external Co-Is can be directed to research@ohio.edu.

The Research Division is committed to providing assistance to proposing teams to enhance their development and potential for success. The Division will hold workshops, answer questions, and provide individual advising sessions to the extent it can throughout the RFP process.
Award types: Awards will be structured to support innovative projects and teams in various stages of development. Projects that meet a high standard for significance and probability of successful execution will have access to major awards (e.g., $250k or more), to be expended over a period of up to 3 years. Additional funding will be made available to support smaller Planning Grants (up to $20k for 1 year) and Seed Grants (up to $50k for 1 year).

The total projected funding available for this cycle is approximately $4M for large awards and $0.4M for planning/seed grants. Depending on proposal outcomes, the allocation of funds between the two categories may be subject to revision. Awards will represent one-time funding (i.e., not continuing base funding). Projects that receive funding in either category must outline plans for sustaining support or durability of impact once OUIS funding ends.

Background: The Ohio University Innovation Strategy was initiated by the university leadership in 2013 to advance the institution’s ability to be forward-looking and responsive to societal challenges. Planning for the Innovation Strategy was undertaken with substantial involvement by the academic deans and supported by the consulting team of Eva Klein Associates.

After lengthy discussion, Innovation was selected as a defining attribute of the university as it positions itself for the future. While the term innovation in higher education settings is often focused on technology commercialization and economic development, Ohio University is adopting a broad definition of innovation that includes the full span of activities at the university. Innovation is thereby understood as the use of new thinking, ideas, methods, tools, and partnerships to advance the university’s outcomes in research, scholarship, creative activity, instruction, and institutional operations.

To foster this concept of innovation and position the university for the future, a framework for targeted investment was proposed. The framework is built around four major portfolios of societal challenges, articulated with thematic subportfolios and niches. Niches were selected as encompassing significant problems, in sectors where the university already has some existing measure of expertise and capacity, and where additional investment can potentially extend the university’s leverage and success in a substantial way.

The Portfolio/Subportfolio/Niche framework was released in September 2014 as part of the Innovation Strategy Interim Report. The framework was modified in response to comments from the university community, and the revised framework is presented in Appendix 1.

The Innovation Strategy Cycle 1 RFP generated a strong response, resulting in Planning, Seed, and Major Awards encompassing a wide range of activities. Further information on the Cycle 1 funded projects can be found at http://www.ohio.edu/research/innovationstrategy.cfm.

Proposal and Review Process: Proposal submission and review will occur via a multi-stage process.

1. Letter of Intent. The Letter of Intent (LOI) provides initial notice of the formation of a proposing team and the basic elements of their intended proposal. Successful LOIs will be posted in their entirety to an internal Ohio University website and made available for viewing by the university community. This step is intended to provide visibility to the level of competition and the types of anticipated proposals, and to enable teams to potentially attract additional members or merge efforts with other groups when appropriate.
Format. The LOI must be a maximum of one page, single-spaced, 12-pt minimum font, one-inch minimum margins, pdf format. Applicants must use one of the following fonts: Arial, Helvetica, Palantino Linotype, Georgia, Times New Roman or Computer Modern (for TeX users).

Contents. The LOI must include the following information:
1) PI name and project title in the document header
2) Innovation Strategy niche(s) addressed
3) Initial estimate of total budget request (detailed justification is not needed)
4) Narrative statements speaking to the following points:
   a. Problem to be addressed and its significance
   b. Proposed activity and purpose of funding
   c. How the proposed activity addresses innovation through an interdisciplinary approach
   d. Existing assets to support the proposed activity
   e. Expected outcome and its significance
   f. Durable impact/sustainability after conclusion of the grant

Submission. Letters of Intent must be submitted electronically via the LEO system using the Innovation Strategy module at http://leo.research.ohio.edu. The LEO submission entry requires identification of the project PI and Co-Is. Final acceptance of the LOI requires approval by the planning unit head for the PI and each of the Co-Is (excluding external Co-Is). Planning unit heads are contacted automatically for approval by the LEO system after the PI submits the LOI, in a process similar to approval of extramural grant submissions.

Deadline. 4:00 pm EDT Thursday October 13, 2016.

If electronic signoff by planning unit heads is incomplete at the deadline, LOIs will still be accepted but will not be approved or posted until all electronic signatures are in place.

Review process. Submitted LOIs will be reviewed by a subcommittee of the Council on Research, Scholarship, and Creative Activity (CRSCA) for compliance with the requirements for Format and Contents stated above. LOI submissions that (a) follow the stated format and include all requested information, and (b) list a team with members from more than one planning unit, and (c) aim to address innovation through an interdisciplinary approach will be deemed eligible to proceed to the next stage.

LOI posting. Successful LOIs will be posted by October 20, 2016 via a link from the Innovation Strategy website at http://www.ohio.edu/research/innovationstrategy.cfm.

II. Pre-Proposal. The pre-proposal provides an opportunity to present a more detailed outline of the proposed activity and its significance.

Eligibility. All teams whose LOI was deemed successful in the review process are eligible to submit a pre-proposal. For the pre-proposal, teams are allowed to change their composition from that listed in the LOI.

Mandatory pre-submission meeting. All teams intending to submit a pre-proposal are required to have team representatives meet with Research Division personnel to discuss plans for the proposed activity. The purpose of the meeting is to ensure that pre-proposals fall within the scope of the
Innovation Strategy and to provide team representatives with feedback to increase the probability of success. Deadline for pre-submission meetings for Pre-Proposals is December 15, 2016. To schedule a meeting, send an email to research@ohio.edu with subject line OUIS Meeting Request.

Format. The Pre-Proposal must be a maximum of four pages, single-spaced, 12-pt minimum font, one-inch minimum margins, pdf format. Applicants must use one of the following fonts: Arial, Helvetica, Palatino Linotype, Georgia, Times New Roman or Computer Modern (for TeX users). A smaller but legible font size is allowed for figures, tables and figure/table captions.

Applications should have the title and PI listed in the header.

Contents. The pre-proposal narrative should speak to the following points.

a. Problem to be addressed and its significance including identification of the niche(s)
b. Proposed activity and purpose of funding
c. Brief description of work plan
d. Team expertise and project roles, and other existing assets to support the proposed activity
e. Project timeline (maximum 3 years)
f. Expected outcomes and significance: what defines success and how will it be evaluated/demonstrated?
g. Durable impact/sustainability after conclusion of the grant
h. Budget (page limit as needed) with budget justification (maximum 2 pages) [not included within the narrative page limit]
i. If the proposing team has previously received Innovation Strategy funding, add an appendix of 1 page maximum length summarizing progress to date

Confidentiality. If the pre-proposal discloses ideas, practices, or processes for which patent protection will be or is being sought, please contact the Research Division (research@ohio.edu) in advance of submission to discuss requirements for handling this information.

Submission. Pre-proposals must be submitted electronically via the LEO system using the Innovation Strategy module at http://leo.research.ohio.edu.

Deadline. 4:00 pm EDT Thursday January 12, 2017. Pre-proposals must be uploaded by the deadline. (LEO approvals can be finalized after the deadline.) See notice above regarding mandatory pre-submission meeting (deadline December 15, 2016).

Review. Pre-proposals will be evaluated by the Review Committee (see below) on the basis of the following criteria:

- Project team is interdisciplinary and drawn from multiple planning units
- Project focus aligns with one or more Innovation Strategy niches
- Project methodology is genuinely interdisciplinary
- Problem to be addressed is clearly defined
- Problem to be addressed is significant
- Project activity is clearly explained
- Project is aligned with existing university assets (e.g., expertise, infrastructure, partnerships) and leverages those effectively
- Project is innovative in bringing new approaches to the problem
- Project scope is realistic
Project has well defined outcomes/metrics for success
Anticipated project outcomes will be significant
Project activity will be sustainable or have durable impact beyond the grant period

Use of Additional Reviews. The academic deans and other planning unit heads will be given the opportunity to review and comment on proposals for which personnel from their respective units are involved as PIs or Co-Is. Depending on the number of pre-proposals submitted, the review process will also make use of external reviewers (i.e., outside the university) with appropriate expertise to evaluate the degree to which proposed projects are significant and innovative. Dean and external reviews will be used by the Review Committee to inform assessment in relation to the criteria stated above.

Review Committee. The Review Committee will be composed of faculty and staff who are members of the Council for Research, Scholarship, and Creative Activity (CRSCA), Associate Deans of the academic colleges, Vice Provost for Undergraduate Education, Executive Dean for Regional Education, Vice President for Student Affairs, Senior Associate Vice President for IT & Administration, Senior Vice Provost for Instructional Innovation, and Vice President for Research & Creative Activity. The Review Committee will make recommendations for advancement of pre-proposals to the full proposal stage, with final decisions made jointly by the Vice President for Research & Creative Activity, Executive Vice President & Provost, and Vice President for Finance & Administration.

Announcement of Results. Results of the pre-proposal review will be announced with a target date of March 17, 2017, subject to revision if necessary to successfully execute the review process. A maximum of 12 pre-proposal teams will be invited to submit Full Proposals for major funding. Feedback from the Review Committee will be provided for all Pre-Proposal submissions at the time that results are announced.

III. Unsuccessful Pre-Proposals: Eligibility for Planning Grants.

Teams submitting Pre-Proposals that are not advanced to the Full Proposal stage, but deemed innovative and potentially worthy of investment by the Review Committee, will be invited to submit applications for Planning Grants, to support their continued development. Planning Grants are intended to fund activities such as retreats, seminar series, visiting speakers, or other endeavors that will strengthen the team’s ability to propose, plan, and execute a project in their area of interest. The expectation is that Planning Grants will enhance the team’s competitive position for future Innovation Strategy and extramural funding opportunities.

Mandatory pre-submission meeting. All teams intending to submit a Planning Grant proposal are required to have team representatives meet with Research Division personnel to discuss plans for the proposed activity. The purpose of the meeting is to ensure that Planning Grant proposals will increase the team’s competitiveness for future funding and to provide team representatives with feedback to increase the probability of success. The deadline for Planning Grants pre-submission meetings is Thursday, April 27, 2017. To schedule a meeting, send an email to research@ohio.edu with subject line OUIS Meeting Request.

Format. The Planning Grant must be a maximum of three pages, single-spaced, 12-pt minimum font, one-inch minimum margins and must include the narrative justification, budget justification and budget table in pdf format. Applicants must use one of the following fonts: Arial, Helvetica,
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Palantino Linotype, Georgia, Times New Roman or Computer Modern (for TeX users). A smaller but legible font size is allowed for figures, tables and figure/table captions.

Applications should have the title and PI listed in the header.

Content. The planning grant should speak to the following points:

a. Proposed activity and purpose of funding
b. How the Planning Grant will enhance your team’s competitive position for future Innovation Strategy and extramural funding opportunities
c. Budget with budget justification

Confidentiality. If the Planning Grant discloses ideas, practices, or processes for which patent protection will be or is being sought, please contact the Research Division (research@ohio.edu) in advance of submission to discuss requirements for handling this information.

Award size. Funding allocated for a Planning Grant can provide a maximum of $20k per team for a period of one year.


Deadline. 4:00 pm EST Thursday, May 11, 2017.

Review. Planning Grants will be evaluated by the Review Committee (see below) on the basis of the following criteria:

- Proposal provides a well thought-out plan of activity that is likely to enhance the team’s competitive position for future Innovation Strategy and/or extramural funding
- Budget request is appropriate and reasonable for the proposed activity

Review process. Applications will be evaluated for merit by a committee comprised of CRSCA members, Vice Provost for Undergraduate Education, Executive Dean for Regional Education, Vice President for Student Affairs, Senior Associate Vice President for IT & Administration, Senior Vice Provost for Instructional Innovation, and Vice President for Research & Creative Activity. The committee will provide recommendations for funding with final decisions made jointly by the Vice President for Research & Creative Activity, Executive Vice President & Provost, and Vice President for Finance & Administration. Funding will be awarded on a competitive basis and is not guaranteed.

IV. Successful Pre-Proposals: Submission of Full Proposals.

Teams that are successful in the review of Pre-Proposals will be invited to submit Full Proposals for major funding. The basic elements of the Full Proposal submission and review process are indicated below, and any amendments will be provided at the time Pre-Proposal results are announced.
Mandatory pre-submission meeting. All teams intending to submit a Full proposal are required to have team representatives meet with Research Division personnel to discuss plans for the proposed activity. The purpose of the meeting is to ensure that Full proposals fall within the scope of the Innovation Strategy and to provide team representatives with feedback to increase the probability of success. The deadline for pre-submission meetings for full proposals is Thursday, April 20, 2017. To schedule a meeting, send an email to research@ohio.edu with subject line OUIS Meeting Request.

Format. Full Proposals must consist of a proposal narrative with a maximum of 10 pages and required appendices. Proposals must be single-spaced, 12-pt minimum font, one-inch minimum margins, pdf format. Applicants must use one of the following fonts: Arial, Helvetica, Palantino Linotype, Georgia, Times New Roman or Computer Modern (for TeX users). A smaller but legible font size is allowed for figures, tables and figure/table captions.

Applications should have the title and PI listed in the header.

Contents. The Full Proposal narrative should speak in more detail to the same points required in the Pre-Proposal:

a. Problem to be addressed and its significance relative to the current state of the field or existing best practices
b. Proposed activity and purpose of funding. Describe how the proposed activity addresses innovation through an interdisciplinary approach.
c. Description of work plan
d. Team expertise and project roles, and other existing assets to support the proposed activity
e. Project timeline (maximum 3 years)
f. Expected outcomes and significance: what defines success and how will it be evaluated/demonstrated?
g. Durable impact/sustainability after conclusion of the grant.
h. If the proposing team has previously received Innovation Strategy funding, add an appendix of 1 page maximum length summarizing progress to date

 Appendices must include:

• 2-page CV for each proposing team member (PI and Co-Is)
• Detailed budget tables (page limit as needed) and budget justification narrative (maximum 3 pages)
• Specific metrics for evaluation of progress, both during the award period, at the conclusion of the award period, and post award demonstrating durable impact (max. 2 pages)
• Citations, if appropriate (max. 1 page)
• Letter of financial/personnel/in-kind support or access during the project period. (max. 1 page for each letter; max. 10 pages total)

Budget items. With appropriate justification, funds can be used for purposes that include supplies, equipment, other infrastructure, salaries, student support, and travel. Questions regarding budget items can be directed to research@ohio.edu.
Confidentiality. If the proposal discloses ideas, practices, or processes for which patent protection will be or is being sought, please contact the Research Division (research@ohio.edu) in advance of submission to discuss requirements for handling this information.

Submission. Full proposals must be submitted electronically via the LEO system using the Innovation Strategy module at http://leo.research.ohio.edu. An abstract summarizing the proposed project is required as part of the submission (maximum length 100 words, part of LEO transmittal form).

Deadline. 4:00 pm EST Thursday, May 18, 2017.

Request to exclude external reviewers: There may be individuals in the field of your proposal who are either direct competitors, have a long-standing intellectual disagreement, and/or have a conflict of interest with your team members, and should not be asked to review your proposal. If this is a concern, the PI must send an email to research@ohio.edu, with the subject line OUIS: Request to Exclude Reviewers, by the Full proposal deadline. The email must include the following information (1) the name(s) and institution/company of these individuals and (2) the reason(s) why you would like them excluded as possible reviewers of your project.

Review. Full Proposals will follow the same process as Pre-Proposals in terms of review criteria and procedure. The Review Committee will make recommendations for funding with final decisions made jointly by the Vice President for Research & Creative Activity, Executive Vice President & Provost, and Vice President for Finance & Administration. Target date for announcement of results is 6 weeks after the Full Proposal deadline. Feedback from the Review Committee will be provided for all Full Proposal submissions at the time that results are announced.

Additional information including FAQs and related materials to support team and proposal development will be made available at the Innovation Strategy website http://www.ohio.edu/research/innovationstrategy.cfm. Information on this site will be updated as needed throughout the process. Questions that are not addressed there can be directed to research@ohio.edu.

V. Unsuccessful Full Proposals: Eligibility for Planning or Seed Grants.

Teams submitting Full Proposals that do not receive a major award will be invited to submit applications for Planning or Seed Grants, to support their continued development. Seed Grants are intended to enable teams to take initial steps in their intended project that will strengthen the team’s ability to propose, plan, and execute this activity on a larger scale. The expectation is that Seed Grants will enhance the team’s competitive position for future Innovation Strategy and extramural funding opportunities.

Award size. Funding allocated for a Seed Grant will provide an anticipated maximum of $50k per team for a period of one year. Funding allocated for a Planning Grant will provide a maximum of $20k per team for a period of one year.

Mandatory pre-submission meeting. All teams intending to submit a Seed Grant proposal are required to have team representatives meet with Research Division personnel to discuss plans for the proposed activity. The purpose of the meeting is to ensure that Seed Grant proposals fall within the scope of the Innovation Strategy and to provide team representatives with feedback to increase
the probability of success. The deadline for pre-submission meetings for full proposals is yet to be
determined. To schedule a meeting, send an email to research@ohio.edu with subject line OUIS
Meeting Request.

Application process. Applications for Planning or Seed Grants will be limited to 3 pages of
narrative justification and will have a deadline of no less than four weeks after Full Proposal results
are announced. Additional details on format and content will be provided at the time that
applications are solicited.

Review process. Applications will be evaluated for merit by a committee comprised of CRSCA
members, Vice Provost for Undergraduate Education, Executive Dean for Regional Education, Vice
President for Student Affairs, Senior Associate Vice President for IT & Administration, Senior Vice
Provost for Instructional Innovation, and Vice President for Research & Creative Activity. The
committee will provide recommendations for funding with final decisions made jointly by the Vice
President for Research & Creative Activity, Executive Vice President & Provost, and Vice President
for Finance & Administration. Funding will be awarded on a competitive basis and is not
guaranteed.

VI. Additional Information and Assistance.

Additional information including FAQs and related materials to support team and proposal
development will be made available at the Innovation Strategy website
http://www.ohio.edu/research/innovationstrategy.cfm. Information on this site will be updated as
needed throughout the process outlined above.

The Research Division is committed to providing assistance to proposing teams to enhance their
development and potential for success. The Division will hold workshops, answer questions, and
provide individual advising sessions to the extent it can throughout the RFP process.

Questions and requests for assistance should be directed to research@ohio.edu.
Appendix I. Portfolios, Subportfolios, and Niches

Background

The Innovation Strategy Interim Report provided a framework of areas for potential investment, structured in four broad Portfolios of societal, economic, business, or technological problems in the real world, for which OHIO has substantial relevant expertise or other assets. Portfolios are articulated in Sub-Portfolios encompassing focused Niches that are candidates for targeted investment. By construction, a niche represents a significant problem confronting society, for which OHIO has existing relevant strengths, and which has the potential for major advances based on interdisciplinary approaches.

The release of the Interim Report was followed by a period in which feedback on the proposed niche structure was solicited from the university community. Many faculty and staff provided thoughtful comments, which were subsequently given detailed consideration by the Innovation Strategy Leadership Team. While the original portfolio/subportfolio/niche framework is largely intact, a number of changes in labels, scope, and description were adopted for its components. The resulting revised structure will be incorporated into the Innovation Strategy Final Report and is provided as an early release in this appendix, for use with the Request for Proposals.

In considering where your interests may align with these niches, it is important to remember that the overall goal of this investment program is to promote innovation with a broad definition, thereby including activities that advance innovation in teaching and learning, and innovation in university operations, in addition to innovation deriving from research, scholarship, and creative activity.
Portfolio A: Digitally Connected World

Portfolio Definition

Create new solutions and implement innovations in mobile, social, and digital technologies and other forms of communication that promote connections between people, places, and things.

Portfolio Structure – Summary
Definitions of Sub-Portfolios and Niches

Sub-Portfolio A.1: New Communication Technologies
Targets innovation related to the ways that new communication technologies bring together people, places, and things.

Niches
• Data and Information Infrastructure and Networks. Explores the characteristics of communication networks – hardware, software, and human interface and the online environment.

• Social and Mobile Media. Considers the creation, design, and assessment (e.g., social media analytics) of digital-social-mobile media.

• Human Computer Interaction. Focuses on technologies and approaches for expanding and refining the ways in which humans send, receive, and interact with computers and digital networks.

• Security and Privacy. Contemplates the meaning of privacy and security in the 21st century.

Sub-Portfolio A.2: Digital Literacy
Addresses individuals' abilities to effectively employ operational skills (e.g., the ability to use a computer), formal skills (e.g., the ability to handle the formal characteristics of a computer network and web environment), and information skills (e.g., skills in selecting, evaluating, and processing information) using new and emerging communication technologies.

Niches
• Digital Ethics. Addresses ethical, courteous, and productive behavior in use of digital media. This includes issues such as cyber-bullying, privacy, digital manipulation, and copyright/intellectual property, among others.

• Multimedia Narrative and Design. Explores how digital tools can be used to create rich narratives using multimedia. Significant areas for growth include evolutions in how those technologies are utilized and deployed. This niche includes topics like user interface design and aesthetics of digital design.

• Visualization/Simulation/Gaming. Addresses technology convergence in bringing overlapping innovations that promote and utilize visualization, simulation, and gaming for both entertainment and instrumental outcomes. This niche includes topics like data visualization, augmented reality, and gamification.

Sub-Portfolio A.3: The World Within the Universe
Studies relating to the ways in which communication innovation has “flattened” the world and created new forms of community.

Niches
• Communities of Interest. Maximizing the promise and avoiding the perils of communities of interest – including face-to-face, virtual, and blended communities.

• Communication and Development. Explores relationships between communication and advancing development.

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Portfolio B: Energy, Environment, and the Economy

Portfolio Definition

Create new solutions and implement innovations in education, technology, policy, communications, and economics that enhance responsible and sustainable use and stewardship of the Earth’s resources.

Portfolio Structure – Summary
Definitions of Sub-Portfolios and Niches

Sub-Portfolio B.1: Our Energy Future
Multidisciplinary study of the long-range future of energy generation, distribution, and use – including technology, policy, economics, and civic engagement perspectives and knowledge – as well as some pragmatic aspects of preparing for the future.

Niches
• Evolutionary Energy Policy, Technology, and Economics. Provides a forum to tightly integrate economists, technologists, business, and public/social policy professionals, who will lead the development and continuous rejuvenation of evolutionary energy policy and a mature technology roadmap for a multi-decade time horizon.

• Environmental Communication and Culture. Develops and applies communication strategies to engage citizens in environmental and sustainability issues – for example, digital story-telling.

• Environmental Safety Training. Focuses on developing innovative training programs and conducting related research in the field of environmental safety. This includes introducing cutting-edge technologies and industry best practices to first responders, and industrial hygiene and environmental repair professionals.

Sub-Portfolio B.2: Energy Generation
Research and development to discover and apply effective, cost-effective, and sustainable ways to generate energy, encompassing traditional, currently alternative, and not-yet-foreseen energy technologies.

Niches
• Biofuels. Addresses the direct use of biomass for energy generation.

• Fuel Cells. Focuses on conventional and solid oxide fuel cells for direct electrical power generation.

• Biomass to Syngas to Fuels. Considers the intermediate conversion of biomass to a standard fuel which, in turn, is converted to traditional fuels.

Sub-Portfolio B.3: Environmentally Responsible Technologies
Research and Applications, encompassing materials, devices, and processes, by which to avert, reduce, or minimize harmful impacts on the environment from industrial and societal uses.

Niches
• Responsible Utilization and Re-Use of Natural Resources, Materials, Fuels, and Energy Generation. Addresses ways to reduce waste and re-use natural resources and man-made materials, where appropriate.

• Sustainable Materials, Devices, and Processes. Studies materials that can be used to make energy-efficient or environmentally responsible products; devices that minimize energy usage and emissions; and processes that efficiently and environmentally produce products – all designed for the entire lifecycle of these items.

• Design and Practices for Sustainable Communities. Develops and applies ways to enhance our abilities to design and build resilient buildings, infrastructure, and communities, using advanced...
materials and technologies. Sustainable design may require response to the consequences of climate change.

Sub-Portfolio B.4: Environmental Mediation and Remediation
Research and applications for improved technologies and methods to avert or reverse environmental damage.

Niches
• Air Quality Monitoring and Remediation. Addresses the measurement of pollutants in the atmosphere, modeling of the propagation of those pollutants, and techniques for preventing their introduction.

• Water Quality Monitoring and Watershed Restoration and Protection. Concentrates on assessment techniques and restoration practices for highly disturbed lands and waters.

• Oil and Gas Pipeline Corrosion Mitigation. Develops analytical and computer tools based on empirical results from operating oil and gas pipeline facilities, in order to improve the understanding and design of corrosion-resistant oil and gas transport facilities.
**Portfolio C: Health and Wellness**

*Portfolio Definition*

Create new solutions and implement innovations in education, science, technology, clinical care, public policy, and business models that improve health and the delivery of care.

*Portfolio Structure – Summary*
Definitions of Sub-Portfolios and Niches

Sub-Portfolio C.1: Public Health
All organized measures to prevent disease, promote health, and prolong life among populations as a whole (from World Health Organization definition).

Niches
• Population Health. Studies health outcomes of a community of people living with certain conditions or living in similar circumstances.
• Global Health. Working collaboratively with others around the world on the examination and application of Population Health issues and delivery models.
• Environment and Food/Nutrition. Explores the impact of environment and food on human health, and solutions.
• Social and Mental Health. Advances the science of mental health and addiction prevention through research and evidence-based prevention programs.

Sub-Portfolio C.2: Underserved Populations
Research and application of educational outreach, health promotion, and health care delivery specific to areas with inadequate or underutilized resources.

Niches
• Healthy Aging. Studies means to optimize the health and well-being of our aging population, with efforts aimed at understanding specific diseases and neuro-musculoskeletal and other physiological systems.
• Health Care Delivery in Appalachia. Studies and applies national, contemporary/best-practice models for health care delivery to populations in rural areas, such as Appalachia.
• Health Care Delivery in Urban Communities. Studies and applies national, contemporary/best-practice models for health care delivery to populations in urban areas, including means to address the health disparity issues of minority populations.

Sub-Portfolio C.3: The Art and Science of Health Care Delivery
Research and application of innovative modes of delivering cost-effective and quality health care.

Niches
• Arts and Wellness. Studies and applies ways to use the arts for health care delivery and to maintain or improve health and wellness.
• Health Communication. Develops systems and methods for delivery of health information to patients, care-givers, and populations.
• Health Leadership. Develops management and leadership skills for those who lead health care delivery systems, as well as those who direct health policy and funding.

Sub-Portfolio C.4: Emerging and Novel Technologies.
Research and applications regarding new pharmaceuticals, devices, diagnostic testing, or other techniques that improve the human condition.
Niches

• **Personalized Medicine.** Studies this emerging practice of medicine that uses an individual’s genetic profile to guide diagnosis and treatment.

• **Prevention, Diagnostics, and Therapies.** Studies of new pharmaceuticals, devices, diagnostic testing, or other techniques by which to prevent or treat high-impact diseases that are prevalent in the region.
**Portfolio D: Vibrant Societies and Economies**

*Portfolio Definition*

Create new solutions and implement innovations in physical, economic, social, arts/cultural, education, and human development environments that help individuals, families, organizations, and communities thrive

*Portfolio Structure – Summary*
Definitions of Sub-Portfolios and Niches

Sub-Portfolio D.1: Citizenship and Workforce
Research and applications that define ways to strengthen skills, knowledge, and effective human development of people – cradle to grave in the context of a knowledge-dependent global society.

Niches
Some niches may focus on Southeast Ohio, or Ohio as a laboratory for global challenges.

• Effective Pre-K to 12 schools. Engages teachers and educational leaders in new modes of preparation and professional development designed to improve positive impact on learners.

• School and Community-Based Health Interventions. Addresses physical, dietary, and mental health initiatives that focus on health, working through school, parent/family, and community organizations.

• Workforce Development. Provides lifelong education and training programs to develop skills and technical knowledge of the workforce to meet current and future needs of employers in Ohio, including a focus on employing persons with disabilities.

• Adult Literacy. Concentrates on research and applications to achieve a wide range of development goals for adults, e.g., functional and reading literacy, numeracy, digital literacy, civic participation, financial literacy, and wise consumer behaviors.

• Disability Studies. Examines the social and cultural context of disability in society and promotes the full inclusion of those who live with disabilities through cultural, political, technological, and other means.

Sub-Portfolio D.2: Arts and Culture as Forces for Economic Prosperity
Research and applications for ways in which arts and cultural resources create Quality of Place and also contribute to economic prosperity and social/individual well-being.

Niches
• Design Thinking. Applies formal, solution-based (as opposed to problem-based) approaches to development, using potential solutions as a way to initiate dialogue, explore concerns, and ultimately select the best solution. Design Thinking is relevant in several disciplines, such as business, education, or engineering.

• Arts and Education. Applies project-specific, research-based techniques to develop models and methodology for how arts-oriented education can contribute to human development at all ages and stages.

• The Regional Arts and Cultural Economy. Creates, with partners, a pragmatic, economic development focus on enhancing arts and culture assets and supporting arts entrepreneurship.

Sub-Portfolio D.3: Entrepreneurship and Economic Development
Research and application of innovation and entrepreneurship to deliver solutions to improve the quality of life for residents in rural and economically distressed regions.

• Rural Economic Development. Facilitates research and service programs that support economic activity in rural and economically distressed regions, with programs that offer unique capacities, exportable best practices, and measurable impact on regional economies.
• Executive Leadership Development. Develops and deploys innovative, interdisciplinary programs to provide leading-edge strategic leadership thought and practice. The objective is to enable leaders to more effectively and efficiently position their organizations in an increasingly complex, dynamic global environment. Target sectors include corporations, non-profits, government agencies, higher education/education institutions, and health organizations.

• Transportation and Logistics. Studies transportation infrastructure that is designed for sustainability (durability and efficiency). This niche responds to the fact that vibrant communities require supporting infrastructure. Transportation may include all modes, from pedestrian to mass transit (buses, rail, and air). Logistics is included, as even well-designed infrastructure is inefficient if movement of goods and people is not well coordinated.