Program Title

DF 19-1: DIGITAL FUTURES PLATFORMS DEVELOPMENT – ANCHOR INITIATIVE

Synopsis of Funding Opportunity

Research in all its forms (creation, discovery and application) is central to UC's mission. As a top urban public research university, we push limits and challenge ideas to discover *Next*. UC is investing in a new 180,000 square-foot building that will open in the Uptown Innovation Corridor in 2021.[1] This "Digital Futures" space will bring together experts for collaboration in "Use-Inspired Basic Research" and "Applied Research."[2] UC's Digital Futures space will host research activities that look to tackle challenges focused around *four platforms*:

1. Resilience & Recovery
2. Safety & Security
3. Mobility & Exploration
4. Future Health

These platforms will be enabled by dynamic teams of collaborators whose core expertise span the research realms of Data, Digital Expression, Hardware, Human Factors and Software.

This solicitation seeks to identify teams of faculty and other experts who wish to work collaboratively to establish interdisciplinary[3] research programs in one or more of the Digital Futures platforms. Successful research programs will have the opportunity to serve as Anchor teams within the Digital Futures space. Anchor teams will be provided dedicated space for an initial period of three (3) years in the Digital Futures building to collaborate internally and with external partners. UC's Office of Research will provide Anchor teams the resources and infrastructure that will enable creation, discovery and application within the Digital Futures space.

The capabilities and platform orientation of the team will be illustrated by a problem statement, associated solution and envisioned impact. The Office of Research has set aside funding for up to 10 planning awards associated with this Digital Futures solicitation. Additional funds will be available for follow-on developmental awards for those collaborations that excel during the planning phase, with an ultimate goal of positioning multiple collaborations for success as inaugural DF Anchor teams.

Digital Futures – Background

In 2021, UC will open Digital Futures - a new kind of research space unlike any at UC: research space not bound to any one discipline; 180,000 sq ft designed to allow for the intermingling of bold ideas and wild imaginations that will set into motion bright futures. The space will be located at the corner of Martin Luther King Drive and Reading Road in the Uptown Innovation Corridor and will be across the street from the 1819 iHub. This placement is intentional, allowing UC's research and innovation missions to expand beyond the old paradigm, and reiterate the institution's commitment to the future of this region.

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[1] https://www.wvxu.org/post/council-poised-approve-development-uptown-corridor-citys-next-big-thing#stream/0

[2] https://en.wikipedia.org/wiki/Pasteur%27s_quadrant

[3] https://www.nsf.gov/od/oia/additional_resources/interdisciplinary_research/definition.jsp

The Office of Research has been charged by President Pinto to design Digital Futures so that UC faculty, research staff and students can collaborate on high-use research projects that will demonstrate UC's ability to create solutions to challenges arising in the digital transformation of our society. Organized around themes rather than disciplines[4] the future-focused creation, discovery and application in Digital futures will harness human creativity, intellectual curiosity, and interest in technological advancement.

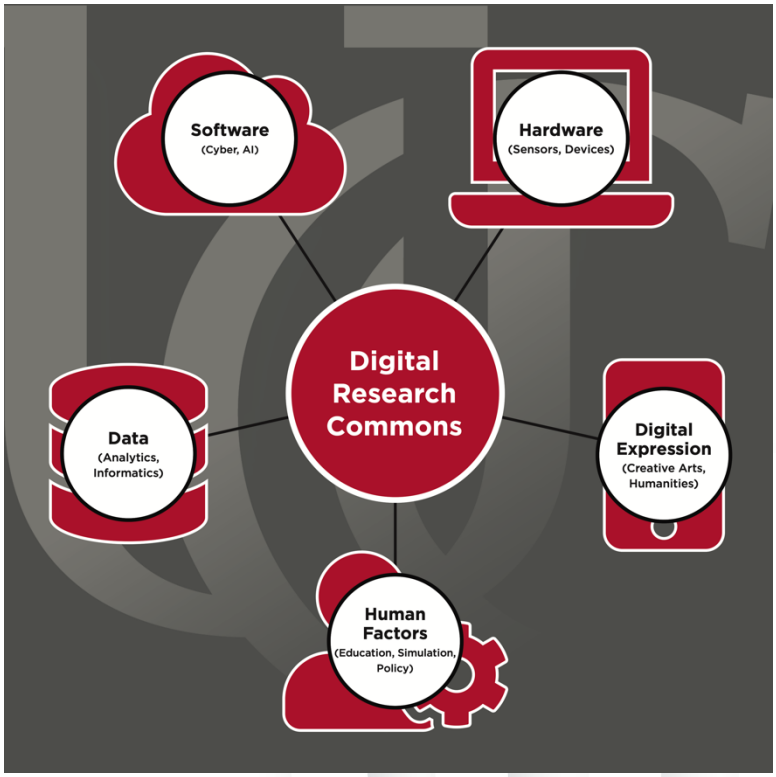
DF Vision: The current digital age has changed how we live, work, learn and play. These changes bring along both opportunities and challenges for our region and the globe. UC's Digital Futures space embraces the present while re-imagining the future in all its forms – objective, subjective and inter-subjective.

DF Mission: UC desires to address the increasing digitally-enabled, human-centered challenges that are arising in today's world. The Digital Futures space allows the creation of new knowledge, technologies and approaches having societal impact by co-locating researchers and providing an outstanding infrastructure to support their work. Our impact will be accelerated by intentional partnerships with the broader community.

DF Values: UC's Digital Futures space enables creation, discovery and application that are:

- interdisciplinary;
- integrated, inclusive and impactful; and
- amplified by external partnerships.

DF Core Competencies: UC's Digital Futures space will allow research experts to collaborate on applied research of interest to our industry partners and pursue "use-inspired basic research". Evaluating the trends arising from the intersection of data science, biotech and the arts and humanities, UC has identified five *core competencies* for Digital Futures that reflect our current strengths as a comprehensive research institution. These competencies are shown in the graphic to the right, with representative examples of the types of creation, discovery and application within each competency.



[4] https://www.media.mit.edu/

Platforms: Presently, there are four broad platforms that have been identified to organize and coordinate the high-use research activities of the Digital Futures space:

Resilience & Recovery: Examples include, but are not limited to, research targeted at new solutions to the challenges of natural disasters, climate change, economic disruption, and social injustice.

Safety & Security: Examples include, but are not limited to, research targeted at information warfare/disruption, geopolitical instability, smart prisons, and food insecurity.

Mobility & Exploration: Examples include, but are not limited to, research targeted at new solutions to the challenges of aging in place, colonizing space, physical disabilities, and social mobility. *Note: research activities in the areas of connected and autonomous vehicles/logistics/transportation design should work directly with the Greater Cincinnati Advanced Transportation Collaborative (GCATC).*

Future Health: Examples include, but are not limited to, research targeted at new solutions to the challenges of patient health and well-being, electronic medical records, personalized medicine, accessibility in rural areas, and patient autonomy.

All of these platforms are considered under the larger umbrella of "smart and connected". As noted in a recent National Science Foundation solicitation:

> "Communities in the US and around the world are entering a new era of transformation in which residents and their surrounding environments are increasingly connected through rapidly-changing intelligent technologies. This transformation offers great promise for improved wellbeing and prosperity but poses significant challenges at the complex intersection of technology and society."[5]

The Office of Research anticipates that at least one or two additional Platform themes will be identified over the next 12-18 months with specific follow-on solicitations for faculty responses to those themes.

Capabilities: Although construction has just started on the Digital Futures space, UC is planning on this space being arranged with ample white/dry lab facilities organized in a modular layout. As such, the space will not contain benches or hoods, but rather will contain appropriate HVAC and power to support computers, research instruments and network communications. Moreover, this space will support studio- or design-forward collaborative activities. A number of core facilities/technologies are envisioned in the Digital Futures space including: VR/AR capabilities; high-bay space for advanced robotics, sensing and drones; high-performance computing; and a dedicated electronics shop. It is anticipated that funds will be reserved to obtain specialized resources that can be used by multiple collaborations, including the Digital Futures Anchor teams. UC is particularly interested in identifying and providing those core technologies (e.g., 5G wireless) that will be critical drivers of the digital transformation.

Anchor Resources: The Digital Futures space will be the home of multiple Anchor teams that are expected to lead research excellence in our platform areas and catalyze new research and educational programs that span multiple platforms. Anchor teams will be provided dedicated space for an initial period of three (3) years in the Digital Futures building to collaborate internally and work closely with external partners. These initial appointments can be renewed for Anchor teams that achieve defined milestones and metrics. Beyond dedicated space, Anchor teams will have access to add-on graduate student funding, undergraduate research stipends, and the opportunity to qualify for post-doctoral/visiting scholar support. The Digital Futures space will have staff earmarked to work with faculty on: identifying new collaboration

[5] https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505364

and funding opportunities; responding to funding opportunities; and planning/managing Digital Futures-themed visiting speakers, symposia and events. There is a clear expectation that Anchor teams will demonstrate the ability to sustain non-institutional support of their collaborations and be engaged and active with external partners while in this space. It is anticipated that workload accommodations will be made with each faculty member's home department to allow researchers within an Anchor team the necessary time to commit to Digital Futures.

Anchor Team Selection: The Office of Research will be using several different solicitations/approaches to identify appropriate faculty-led, use-inspired creation, discovery and application collaborations that are consistent with the Vision, Mission and Goals of the Digital Futures space. Previously, the Deans were asked to nominate faculty and faculty teams that have strengths in the core competencies required in Digital Futures. From that process, which initiated in the Fall of 2019, the first cohort has been selected to begin their planning/development phase.[6] The current solicitation seeks to complement those teams with additional collaborations that can work within the four initial Platforms that are expected to form the major focus of Digital Futures from now until the space opens in the Fall of 2021. In addition, Research Collaboratives already supported by the Office of Research (e.g., GCATC) will also be co-located in the Digital Futures space and will interact with Anchor teams.

While the Anchor Team selection process is a multi-step, multi-year initiative requiring a significant commitment from the participating teams, the Office of Research will be providing time, resources and financial support to those faculty collaborations who see the value of working side-by-side on some of society's most challenging problems. This support will enable these collaborations to integrate as a team, identify the most impactful and appropriate challenge statement(s) for that team, and position those teams for success in the highly competitive external funding environment.

Solicitation Specific Information

Desired Outcome: A desired outcome of this solicitation is to identify expert teams passionate about use-inspired research relevant to the Digital Futures platforms, where the teams are represented by *at least two of the core competencies* described earlier. We particularly desire responses from teams that are focused on leveraging UC's existing strengths in Digital Expression and Human Factors to *lead* in collaborative activities that are human-centered/focused.

The Office of Research has set aside funding for up to 10 awards associated with this Digital Futures solicitation. These funds are primarily intended to be used as a planning grant, to allow each team the necessary time to identify the particular milestones and metrics that need to be achieved to successfully address the challenge statement. Additional funds will be available for follow-on developmental awards to provide necessary personnel, supplies or specialized equipment to allow collaborations to demonstrate their ability to deliver against specific milestones and metrics. The ultimate goal of this specific DF Platforms Development Program will be to support and enhance at least four collaborations that can serve as Anchor teams, with those collaborations demonstrating a competitive ability to secure follow-on external funding to pursue the majority of the proposed research activities within the initial three-year residency period in the Digital Futures space, starting in the Fall of 2021.

[6] https://research.uc.edu/support/offices/vpr/announcements/vice-president-of-research-s-office/digital-futures-anchor-initiative

Challenge Statement: The responding teams are free to develop their own challenge statement, identify challenge statements based on one or more of the frameworks described below or co-create a challenge statement with an external partner (e.g., industry partner). Challenge statements should be sufficiently aspirational as to demonstrate a commitment towards building an impactful collaboration, yet should be realistic and leverage strengths existing at UC or within this region – specific, focused challenge statements are strongly encouraged.

Challenge Statement Frameworks: A variety of frameworks are available to assist in communicating challenges and the potential follow-on funding opportunities relevant to the Digital Futures. Below are resources that can be accessed as representative examples of challenge frameworks:

- United Nations Strategic Development Goals
- Arts and Social Impacts Explorer
- NEH for All
- APLU HIBAR Initiative
- Ohio Chamber of Commerce Foundation "Ohio Bold Report"
- NIH Strategic Plan
- NSF Big Ideas
- Department of Defense Mission Challenges
- NASA Global Challenges
- Department of Energy Strategic Innovation Plan

Impacts/Outcomes: High-use research emphasizes identifying the steps necessary to solve a particular problem. A number of challenges exist as our society undergoes the digital transformation, and we expect that our Digital Futures activities will have measurable impacts on the region and global society. Illustrative examples of impact statements include those from the Department of Defense, the National Science Foundation, and the United Nations. However, responses to this solicitation are free to formulate their own impact/outcomes based on the proposed challenge area.

Deadline: 14 June 2019 (due by 5:00 PM EDT)

Eligibility Information: A full-time tenured/tenure-track UC faculty member must serve as the team's Point of Contact (POC). Additional team members may include full- or part-time UC faculty or faculty holding a primary appointment in one of UC's affiliates (CCHMC, VA and UC Health) or external collaborators from industry/government/NGOs/community. UC faculty can participate on more than one submission to this solicitation except faculty serving as the POC – POCs can only participate on the solicitation on which they serve as the contact.

Faculty previously nominated in the "Dean's round" are NOT eligible to participate in this opportunity, and teams who participated in the initial Request for Ideas cannot resubmit previous challenge statements. If you have questions regarding your eligibility, contact Nikki Arde.

Proposal Review Criteria

All submissions will be evaluated on the following criteria:

- The overall orientation of the challenge statement and solution with the identified platform and the vision, mission and values of Digital Futures.
- The focus, creativity, originality or potentially transformative nature of the challenge statement.
- The alignment between the impact of the presented solution(s) and regional/global needs.
- The core competencies present in the team, past records of success/impact of team members, and how intentional the team is about embracing diverse and inclusive approaches.
- The recognition of external partnerships that would strengthen this team's success at addressing the challenge statement.
- The evidence presented not only of potential funders, but of related success/ability to achieve external funding.

The types of applications that will be most competitive will be those that:

- Are interdisciplinary and creatively pursuing a significant problem;
- Are interested in engaging the Internet of Things (IoT) and/or "smart & connected"[7] solutions;
- Engage external partners (industry, government, NGO, community);
- Leverage UC's strengths and capitalize on our intellectual and/or cultural diversity;
- Involve UC's junior and under-represented faculty.

Award Information

The funding period will be for 6 months with an estimated start date of 15 August, 2019. Each team selected to participate in this pilot will receive a $10,000 planning grant to support initial team activities (e.g., hosting external experts; engagement with external consultant(s), travel to funding agencies or model programs). A budget for these funds will only be required for those teams selected to participate in the pilot. The Office of Research will manage all Digital Futures Solicitation Awards.

Solicitation Teleconference

The Office of Research will be hosting a teleconference to review the solicitation materials and answer any questions from interested UC faculty on **May 13th from 11:00 am until 12:00 noon**. This teleconference can be accessed by dialing 513-621-0220 and using participant code: 155 387 1371#

Solicitation FAQs

A solicitation FAQ page has been established through Office 365 OneDrive.

[7] integrate intelligent technologies with the natural and built environments, including infrastructure, to improve the social, economic, and environmental well-being of those who live, work, or travel within it

Contact Information

For further information regarding access to the on-line submission portal or clarification about the required submission elements, please contact Nikki Arde (Nikki.Arde@uc.edu) in the Office of Research.

Additional Reading

Feature article on collaborations arising from the Deans' Nomination process
https://research.uc.edu/news/2019/01/14/conversation-on-who-gets-space-at-digital-futures-begins
Past media on UC's Strategic Directions (including Digital Futures)
https://www.uc.edu/strategicdirection/media.html
An overview of the Urban Futures Pathway, which includes Digital Futures
https://www.uc.edu/strategicdirection/urbanfutures.html
The Uptown Gateway, home of UC's Digital Futures
http://uptown-gateway.com/

UC:DF - Discover>Define>Develop>Deliver

Proposal Preparation and Submission Instructions

Required Elements – all materials will be submitted on-line. It is strongly recommended that you prepare your information ahead of time in a Word (or similar) document, keeping track of the word count. Material can then be pasted into the on-line portal where appropriate.

Submission Portal: https://webportalapp.com/sp/digital-futures-19-1

Project Title (15 words or less)

DF Platform (select one)

- ☐ Resilience & Recovery
- ☐ Safety & Security
- ☐ Mobility & Exploration
- ☐ Future Health

Why this Challenge?

In 500 words or less, describe the challenge this collaborative team is passionate about and why this particular challenge is worth addressing

Why this Solution?

In 500 words or less, describe – at a high level – the solution(s) of interest to this collaborative team and the potential impacts those solutions will have regionally and globally

Team Profile

Provide contact info for up to six (6) team members, including team point-of-contact, who are committed to this collaboration; the core competencies of each team member must be identified. All UC team members should have profiles available in UC's Research Directory (https://researchdirectory.uc.edu/).

Why is UC well-positioned to take on this challenge?

In 500 words or less, describe why UC has the appropriate location, expertise, facilities and/or partners to pursue this challenge

Extended Funding

In 250 words or less, list external funding agencies, industry partners, and /or philanthropic organizations that you believe would be interested in supporting this line of scholarship/research (please be as specific as possible)

DF Success Factors

What do you believe you need to be successful that you do not already possess (check all that apply): Specialized technology, Specialized equipment, Specialized space, Specialized electrical/power needs, Other. Provide a rationale for these specialized requests

Team Point-of-Contact Info

Name, email