

Disruptive Technology Empowering Precision Medicine (D-TECH) Task Force- 2023 Updates

Mission: The overarching goal of the Disruptive Technology Empowering Precision Medicine (D-TECH) strategic area is to transform research and healthcare at UAB by defining new ways to integrate cutting-edge technologies into biomedical research and precision healthcare. The D-TECH strategic area encompasses an expansive mission, effectively covering any research at UAB that relies on the rapidly advancing infrastructure in informatics, artificial intelligence, Electronic Medical Record (EMR), and high dimensional data management on one hand, and the expanding experimental and technical infrastructure on the other hand. This means D-TECH squarely intersects with the missions of I-4ward, Brain Health and Disease Across the Lifespan, and Health Equity, placing it as a central partner in advancing the reach of biomedical research and healthcare outcomes at UAB.

Task Force: The D-TECH Task Force is comprised of ten members, with expertise in informatics, genomics, imaging, EMR, research computing infrastructure, data management, artificial intelligence, and precision medicine, as well as topical expertise in numerous research specialties. The Task Force continues to evolve, with several new members added in the summer of 2023.

Progress: D-TECH has contributed to a collective effort between three strategic areas (I-4ward, Brain Health and Disease Across the Lifespan and D-TECH) to expand the spatial transcriptomics infrastructure at UAB. One D-TECH Task Force member has been designated to oversee aspects of implementing this to ensure wide access to researchers across disciplines.

An area of emphasis in the D-TECH Task Force discussions was to define new strategies to facilitate access to the expertise and advanced technologies currently available at UAB. The HSOM has recruited many talented researchers and clinicians with expertise in the advanced technologies encompassed under the umbrella of D-TECH, and it has also invested in new instrumentation with these recruitments. However, a substantial barrier to realizing the full impact of these HSOM investments is a lack of easily accessible information about the expertise and availability of researchers willing to assist in collaborative projects and the instrumentation available for collaborative research. Indeed, the current systems in place to query these topics are inadequate and tend to discourage researchers and clinicians from investing energy into new high-impact lines of inquiry. To oversee an effort to collate information about resources, expertise, and availability, as well as to serve as a point of contact for researchers who are interested in extending into new areas of collaboration, we are proposing creating a position for a Program Director. If successful, these efforts have the potential to transform the utilization of resources at UAB by expanding mutually beneficial connections that serve to extend research and clinical capabilities.

Challenges: One issue that requires attention in the upcoming year is the challenge associated with the wide breadth of topics encompassed within the D-TECH strategic area. This was viewed as a strength in selecting this as one of the four priority areas. However, in the first year of the Task Force, it has become apparent that this also represents a practical challenge toward defining discrete goals. For example, many diverse areas within the D-TECH umbrella would benefit from the attention of the Task Force, but it was challenging as a group to prioritize a specific problem to address. This made it difficult to reach a consensus on selecting areas for intervention and defining the best path forward for an individual investment. It might be worth considering forming a few discrete working groups for D-TECH to facilitate discussions about selecting tangible action plans to undertake in the next year.