

Extending OTT FedTech to HEP

Snowmass 21: Contribution

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The Office of Technology Transitions (OTT) was established in 2015 to oversee and advance the Department of Energy's mission by expanding the commercial impact of DOE's R&D portfolio to advance the economic, energy, and national security interests of the Nation. The office develops the Department's policy and vision for expanding the commercial impact of its research investments, and it streamlines information and access to DOE's national labs and sites to foster partnerships that will move innovations from the labs into the marketplace.

In 2019, OTT partnered with NNSA to engage an external partner, FedTech <https://www.fedtech.io/>. The FedTech team works with federal agencies and national labs to identify promising lab technologies and pairs them with external entrepreneurs. The goal is to facilitate the transition of these lab technologies through CRADA, licenses, and other mechanisms in partnership with these entrepreneurs.

In FY20, OTT restricted the lab technologies that were eligible to go through the FedTech program to only those that had been through the full Energy I-Corps program. In a recent example, FedTech reviewed a technology at Fermilab, which can mass produce nanofiber layers of polypropylene using a novel low-cost electrospinning system. The system utilizes a patent-pending low-power output, high voltage DC power supply, which is extremely safe to use and can be operated from a 12V battery in tabletop applications. It has been effectively used in a free surface wire electrospinning set up to produce a variety of polymer nanofibers in continuous production mode with diameters ranging from 0.1~0.3 microns. Fabrication of a tabletop prototype nanofiber coating machine has already begun its final stage on the Fermilab site and, once in operation, can coat nanofiber layers of desired specifications on a filter substrate with a production capacity of 2000~3000 square meters per day.

Although FedTech selected this technology as suitable for inclusion in the program, it was denied the funding to do so because the inventor / technology had not previously been through the Energy I-Corps program. Following this setback, the inventor enrolled in the I-Corps program, which was delayed due to the COVID-19 pandemic. Amid the pandemic, the inventor and colleagues realized the technology could be applied to face mask manufacturing, and pivoted to discussions with mask manufacturers and integrators, which necessitated subsequent withdrawal from the I-Corps program.

In a situation like this, where the inventor, colleagues, and administrative staff are handling mission critical work and commercialization activities simultaneously, the FedTech program is most valuable—yet this team was prohibited from leveraging FedTech precisely because its commercialization efforts limited the time available to commit to the I-Corps program.

OTT recently extended eligibility of the program from not only those technologies that have been through the full Energy I-Corps programs to include technologies that have been through various site-funding programs. The intent was to open a much larger suite of technologies that have been through some level of customer discovery and validation— but the result was the same. The team with the *most* customer discovery and validation was barred from participation.

The authors propose direct funding of Office of Science technologies through the FedTech program. For \$125K per year, Office of Science could sponsor five FedTech teams and eliminate participation in Energy I-Corps or Site Funding programs as a prerequisite. That way, every Office of Science lab would be able to get one technology into FedTech every other year. For \$250K, all Office of Science labs could get one technology per year into FedTech.