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Getting the most out of Dalhousie's $100-million investment in research equipment

New core facilities project begins to explore a coordinated approach

Dalhousie research facilities consists of more than $100 million in platforms, technologies, and equipment that play a critical role in supporting scientific inquiry across the university. Largely acquired by leading researchers through grants from government agencies and other funders to advance specific areas of investigation, Dalhousie's research infrastructure has a tremendous impact in advancing new discoveries.

Large investments have been made to propel research across the university. Lifesaving medical research is powered with equipment that supports optical and electron microscopy, cytometry, and mass spectrometry – techniques scientists use to examine, parse, and analyse cells and molecules at minute levels. Likewise, funding has been dedicated to nuclear magnetic resonance equipment imperative to chemical and biological research. Technologies to create surveys, develop statistical models and interpret data are being used to advance social and health sciences, and other fields. This is just a sampling of the platforms that underpin university's thought leadership.

Exploring efficiency

With such large and continued investment, it is important to have a full understanding of how the university's research facilities are being used and managed. To take on this challenge, a core research facilities pilot project was initiated to ascertain how the university operates and maintains its major research equipment and efficiencies that can be pursued. Ultimately, a major goal of the project is to free principal investigators from time spent managing and maintaining equipment so they can focus on producing globally competitive research.

"Research-intensive universities are trending toward intentional, organized, shared use of research infrastructure resources," says Kirk Feindel, who joined Dalhousie in 2020 to begin staking out the core facilities project after gaining significant experience in the leadership of shared research facilities at the University of Western Australia.

Dalhousie's research infrastructure has grown substantially over the past few decades with tens of millions of dollars flowing to the university to support the acquisition of equipment, technologies, and platforms. Feindel says now is an opportune time to look at what has been gained, and the work that has already taken place to maximize the investments, to ensure researchers and ultimately the larger community experience their full benefits.

"Our assets have grown quickly, and we have a great opportunity to build institutional supports around them. It is a good moment to say, 'okay we should assess what we have and what other research-intensive institutions are doing to observe how they're managing these large resources,'" says Dr. Feindel, who, in addition to his work at Dal, was recently elected Eastern Canada's representative for the Canadian Network of Scientific Platforms, a body that works to raise awareness and promote utility of shared scientific platforms in the country.

Dr. Feindel says some good work is already underway at the university. “Through the Centralized Operation of Research Equipment & Supports (CORES) program, the Faculty of Medicine has demonstrated the effectiveness of a coordinated approach at the faculty level – the core facilities project is considering how coordinated supports may be beneficial across the faculties and campuses.”

Pairing people and platforms

Feindel explains that while a research platform may be brought to the university through a grant for a specific area of research, the principal investigator who acquired it may not always be using 100 per cent of its capacity. Consequently, there may be opportunities for other researchers to use the equipment to pursue new fruitful lines of inquiry. For instance, a marine biologist may benefit from a cell sorting platform at the Faculty of Medicine that has some downtime. Or an economist may benefit from statistical software acquired within the Faculty of Health. Finding ways to fully engage the platforms could bring significant benefits.

A part of the solution that is being explored is the potential for more strategic pairing of equipment with dedicated staff who understand how it functions and can coordinate its use for stakeholders across the research community, says Dr. Feindel.

“As platforms become more specialized it becomes more important to pair specific individuals who have niche expertise around the equipment itself. Then they're able to support broad groups of cross-disciplinary investigators on the same piece of equipment.”

Further, Feindel suggests that it may be possible to identify opportunities for industry partners to leverage resources, allowing the university to draw revenue while also offering a valuable resource that can propel private sector research and development in the region and beyond.

But managing these relationships is time consuming. It involves policy and procedure development, process management and paperwork. All of this would chew into valuable research and teaching time for principal investigators. This is where a well-managed core facilities plan could come into play, says Feindel.

Next steps

With an initial scan of Dalhousie’s research facilities complete, Dr. Feindel is working on a plan for a project dedicated to process improvement which he will put forward for consideration by the Offices of the Vice President Research and Innovation and the Vice President Finance and Administration.

“The project will focus on things like invoicing and billing and tracking usage – developing aspects of the process that aren’t something our professors, their students or academic staff should have to dedicate valuable time to.”

He says that the aim will be to standardize processes across the university, increase coordination and automate where possible.

Eventually, he says he would like to see a core facilities program aid the university in its recruitment of faculty and graduate students. He notes that if early and mid-career researchers know that they will

have access to key technologies, platforms, and equipment it will make their decision to come to Dalhousie that much easier.

“When you're coming in as a new professor, having access to the equipment and staff expertise that you can rely on is a real benefit,” he says. “If Dalhousie can make its excess capacity available to new, up-and-coming researchers, it could be very attractive.”

Research Support Fund

Established in 2003, the Research Support Fund (RSF) helps Canadian universities and colleges, along with their affiliated health research institutes and research hospitals, with the indirect costs associated with federally funded research.

At Dalhousie, the RSF, which includes both the RSF Grant and Incremental Project Grant (IPG), is supporting the core facilities project.

In 2021-22, the RSF/IPG is providing $9,399,276 to support the indirect costs of research at Dalhousie and affiliate hospitals.