Research 2.0: Evolving Support for the Research Landscape

The University of Prince Edward Island (Canada) is a small, research-intensive institution, which is developing a considerable infrastructure in support of the research activities on campus. These efforts are being championed by the Library and are an important element in the transformation of the academic library to one that is critical to the ongoing support and development of this aspect of the academic enterprise. UPEI has a range of undergraduate, graduate and professional programs and generates close to $20 million in research funding annually, third in the region.

With the advance of big science and cyberinfrastructure, academic institutions are faced with the issue of how to support not just well funded initiatives, but all research projects on campus. The University of PEI Library has developed a robust framework in terms of strategy, policy, education and the development of a Virtual Research Environment (VRE) in providing support for research. When the institutions Research Strategy was released in 2008, it included a number of goals specific to the provision of support for researchers, including: "Through the Virtual Research Environment (VRE) to provide a world-leading, flexible information technology infrastructure in support of the conceptualization, dissemination, publication and long-term stewardship of research." To date the Library has created VRE sites for almost 50 research groups on campus.

This policy framework is combined with a flexible approach to funding a centralized research infrastructure and the ongoing development of an open source research platform. Researchers are encouraged to provide support for the VRE and related infrastructure via individual research grants, both in terms of hardware and software development, and central research funds allocated to the maintenance of the institutions research readiness are also accessible. As additional research groups adopt their own VREs, the development team ensures that customization and enhancements are generalized and of benefit to all participants. This philosophy

of ensuring that all development is carried out with an eye to broader benefit is an extension of some of the core tenets of the open source community, an effort critical to the UPEI approach. Educational efforts include face-to-face sessions with individuals and groups, online tutorials and guides as well as online support via e-mail and chat. A summer institute is in the planning stages and is intended to provide VRE practitioners with additional training as well as the opportunity to define new functionality.

Also key to these efforts is a software foundation that provides support for any digital data asset and associated metadata, a requirement that is more than met by the Fedora repository software. The VRE platform uses a Drupal/Fedora data repository and collaborative web environment that can accommodate a wide range of research requirements and also allow research groups to get up and running with as minimal or extensive an environment as appropriate. Research groups using the VRE represent a range of disciplines, including: humanities & social sciences (Centre for Christianity and Culture; Marxism and Psychology; Culture, Multimedia, Technology and Cognition) and the sciences (Marine Natural Products Lab; Lobster Science Centre; Mullusc Health Lab; Atlantic Center for Bioactive Valuation). The architecture of the open source software that underlies the VRE (Islandora) ensures an extensible and flexible framework. The ability to define virtually any collection with associated metadata and digital assets is core to this flexibility. Collections can also define any number of data transformations, allowing workflows to be defined and associated with data at any point in the research life cycle. A simple but powerful security framework allows access to individual objects to be defined at the level of users or groups when data is deposited, or at any time after deposit. This puts control of the research data life cycle in the hands of the researcher, allowing a completely closed or open data approach and all variations in between.

The end result is a leading-edge virtual research environment that provides a secure and feature-rich environment for the discussion, development, analysis and dissemination of research. The UPEI effort includes an underlying support and encouragement for researchers to adopt an open approach to research, whether it is

via open access, open data or open science approaches and philosophies. The ultimate goal is to help transform the research process by sharing data and results early in the process and with as wide an audience as possible. By combining the open and collaborative approach that academic libraries have been part of for decades with the emergence of similar tendencies in the research community, the UPEI efforts are helping define a new Research 2.0 approach to the creation of knowledge.