This project targets research support and educational initiatives at the undergraduate and graduate levels to integrate Open Science (OS) practices. OS represents an approach to research that emphasizes reproducibility, transparency and accessibility. Researchers, institutions and funders are fostering a culture change towards OS worldwide, recognizing that OS practices demonstrably increase research discoverability, productivity and impact.

Strategic Goal 1: OS & Research Support: We aim to establish the expertise and infrastructure required to foster the practice of OS among willing members of the entire UBC research community at both campuses. We will (a) build infrastructural support across disciplines already engaged in Open Science principles, (b) support uptake through workshops covering the full scope of OS including technologies, workflow management and publishing, (c) support the integration of technologies that facilitate OS practices, (d) acquire technologies that will further enhance efforts at practicing Open Science, and (e) through forums, promote and build discussion through inter-institutional sharing of expertise. Through continued collaboration with Advanced Research Computing (ARC), these key objectives will leverage and be supported by, in part, both the Digital Research Infrastructure (DRI) and Research Data Management (RDM) resources through the strategic incorporation of Open Science tools, training and principles with DRI and RDM strategic roadmaps.
Strategic Goal 2: OS & Undergraduate and Graduate Education: Our goal is to ensure that the core tenets of OS are of second nature to graduates of UBC’s undergraduate and graduate programs. We will accomplish this by building learning objects that scaffold OS principles across undergraduate and graduate science education, integrating with and enhancing existing curriculum, ultimately rewarding students with accreditation in OS. We are currently using the Biology undergraduate program at the Okanagan campus as a test bed for these efforts. Graduate students and their advisors will have access to regular OS workshops at both campuses, and instructors of core graduate courses within science will be offered instructional material and resources created as part of research training efforts.

<table>
<thead>
<tr>
<th>FUNDING</th>
<th>Year</th>
<th>2016/19</th>
<th>2019/20</th>
<th>2020/21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Funds</td>
<td>50,000</td>
<td>50,000</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Other Funding</td>
<td>50,000</td>
<td>50,000</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Implementation Area: Central Vancouver

How does this project support the themes?

Collaboration: Evidence shows that OS practices promote collaborative opportunities (e.g. because one’s research and data are more discoverable). Thus, by fostering OS at UBC, we will enable greater collaboration. Also, OS efforts involve increasingly diverse groups at both campuses.

Inclusion: OS is inherently more inclusive than traditional research approaches, since it promotes unfettered access to knowledge and information. Our efforts extend to all communities at both campuses. The Networks of Centres of Excellence grant includes partnerships with Indigenous scholars, exploring opportunities and challenges posed by western OS practices for Indigenous knowledge traditions.

Innovation: With strategic support, UBC could be the world’s first university to (a) embed OS practices within undergraduate curricula, and (b) offer accreditation for OS training. Further, after two years of correspondence with the Centre for Open Science, we are making major progress in modifying their extremely popular web-based tool, Open Science Framework (OSF) (https://osf.io), to be compliant with Canadian and B.C. privacy standards. Once complete, OSF will be a key tool for facilitating OS practices among UBC researchers, and UBC will have the capacity to support OSF users (primarily via library staff). This, too, will be a first among Canadian universities.
**What are our key metrics? How will we know if we are successful?**

- **Research:** Number of and feedback from participants in various OS workshops. Attendance at the OS World Forum to be hosted by UBC in 2020. Uptake in OS curricular integration, indicative of movement from research practice to classroom development. Trends in the number of publications by UBC researchers that are open access and that include open data and reproducible protocols.

- **Education:** Integration of OS-related components in course curricula and examinations. Grading of OS-related projects. Feedback from instructors on the uptake of OS instructional materials by their students, and students’ perceptions of the utility of these materials.

---

**What will happen if the pilot is unsuccessful? If successful, how will the pilot result in sustainable change?**

- **This is a change project more than a pilot project. Initial efforts are already underway, directed toward UBC researchers and undergraduates. Whether or not these efforts continue to grow through strategic support, OS as a movement of practice will endure and expand, both nationally and internationally. Endeavours at open-science acculturation will necessarily continue, but these would be much timelier and more impactful with the benefit of strategic support. Sustainable change in the context of supporting research will see the uptake of platforms and policies, officially supported by UBC, that encourage all research to adhere to the best practices of OS whenever possible. Sustainable change in the context of undergraduate education will see dedicated efforts at integrating OS practices in the classroom become routinized across disciplines, as well as the development of dedicated courses that enable students to graduate with certification in OS training.**

---

**What will be different as a result of this project?**

Our project will transform the research culture at UBC by increasing the proportion of UBC researchers who practice OS. Evidence indicates that OS increases research productivity, discoverability and impact. Beyond the two-year term of this proposal, we envision the establishment of an OS accreditation program (e.g. micro-credentials) for science undergraduates and graduates, initially at UBC-O and later at UBC-V. The University as a whole will be recognized internationally as a leader in OS promotion and training. The accompanying Program Appendix outlines our near-term (1-2 year) priorities and long-range (3-7 year) objectives for OS development at UBC.