

## SIMON FRASER UNIVERSITY STRATEGIC RESEARCH PLAN SUMMARY 2016-2020

As one of Canada's fastest-growing and most versatile research institutions, Simon Fraser University (SFU) is distinguished by its internationally recognized strengths across a range of core and interdisciplinary fields. From discovery to knowledge mobilization, SFU's eight faculties are engaged in the full spectrum of research, building on a strong tradition of interdisciplinary investigation and collaboration. Our ability to leverage core strengths in fundamental research across the disciplines is the cornerstone of our knowledge mobilization activities. SFU is consistently ranked among Canada's top 15 research universities by major national and international university ranking systems. Most notably, SFU ranks among Canada's top universities in research impact. We are committed to becoming a world leader in knowledge mobilization, building on a strong foundation of fundamental and applied research. The 2016-2020 Strategic Research Plan (SRP) serves as a roadmap to continue building towards this goal.

### **Major Objectives of the SRP**

Aligned with SFU's vision of being a leading engaged university, the university will focus its research strategy to:

- Support and promote the full continuum of research, from the fundamental generation of knowledge, through the dissemination of that knowledge within the academic community and beyond, to the application of transformative ideas for the benefit of society;
- Promote research excellence, supporting and encouraging all researchers, including undergraduate and graduate students, postdoctoral fellows, faculty, staff, and community partners, who assist the research mission;
- Leverage fundamental research strengths, including interdisciplinary research, close community connections, and partnerships and collaborations to become a global leader in research mobilization; and
- Seek opportunities to transfer the results of our research to the broader society, including policy-makers, civil society leaders, and the community.

### **Priority areas for research and research training**

Over the next five years, SFU's priority is to advance the full spectrum of research, and to support research excellence across all disciplines. This commitment defines the importance of SFU research and enables both established and emerging leaders and groups to engage in a wide variety of research activities. Deepening our commitment to excellence will enable us to solidify our research strengths and build on our globally recognized areas of breakthrough research and innovation.

SFU's SRP is not discipline-specific; instead, it is centred on addressing real world problems, as our research increasingly involves contributions from experts across various and often distant fields. As a large research intensive university, our researchers focus on innovative solutions for diverse sets of problems. In particular, we support research that addresses problems across a number of broad, strategically significant areas, which we refer to as challenges. These challenges encapsulate the breadth of SFU research in terms of the principal global challenges they respond to:

- *Addressing environmental concerns and creating a sustainable future;*
- *Understanding our origins;*
- *Supporting health across the human lifespan;*

- *Strengthening civil society by advancing justice, equity, and social responsibility;*
- *Enhancing our world through technology; and*
- *Transforming the landscape of teaching and learning.*

These research areas have been strengthened through SFU’s strategic investments, which include: new faculty hiring, obtaining state-of-the-art equipment and facilities, and developing new programs and partnerships.

In the process of addressing these challenges, we have developed particular strengths that have led to the establishment of four strong research clusters. These clusters provide platforms that enable researchers to tackle large crosscutting challenges, while creating and capitalizing on distinct advantages for global leadership. The clusters are defined by a strong core of researchers from diverse disciplines who use innovative approaches and methods to drive impactful outcomes.

The four research clusters are:

- *Big Data;*
- *Community-Based Research;*
- *Health Technology and Health Solutions; and*
- *New Materials and Technology for Sustainability.*

Taken together, these clusters demonstrate SFU’s commitment to supporting interdisciplinary research, data-driven innovations, seamless partnerships with diverse sectors, and the agility to capitalize on new opportunities to achieve maximum impact. Expanding this approach will not only continue to build critical mass in existing areas, but also provide an important platform to develop and diversify SFU’s strategic research strengths. Over the next five years, SFU will build on its six research challenges to strengthen existing clusters and develop new ones. As that takes place, the university will create opportunities to lead high-impact research in discovery and knowledge mobilization.

### **Gender representation in Canada Research Chair nominations**

As of October 1st 2016, 44% of our filled Canada Research Chairs (CRCs) are held by women, thus significantly exceeding our target of 31%. This success is mainly due to SFU’s rigorous recruitment process for CRC positions, which is governed by SFU’s Academic Policies A10.01 and A10.6. Underlying these policies is the commitment to equity and diversity, such that the university will advance the interests of under-represented members of the work force, specifically, Aboriginal people, persons with disabilities, visible minorities, and women (the four designated groups), and ensure that equal opportunity is afforded to all who seek employment at the university. These commitments are enhanced by ensuring that all search committees include members from the designated groups, and that they are made aware of unconscious bias. Other strategies include the development of new liaisons with national and international organizations, which support or involve the four designated groups. In addition, workshops are available for new departmental and faculty heads, such as Chairs, Directors, and Deans, on equity strategies and recruitment practices to assist in increasing the representation of the designated groups in the faculty and staff complement.

### **CRC and CFI deployment**

SFU will support strategic areas of research by deploying new CRCs and building research capacity in priority areas through the Canada Foundation for Innovation (CFI) and the Province of British Columbia (BC), including the BC Knowledge Development Fund (BCKDF), and industry partnerships. Table 1 provides the current number of Tier 1 and Tier 2 Chairs at SFU in priority research areas, based on the



challenges identified above. These numbers include submitted/pending applications. Note that while the research program for some Chairs may fit within multiple priorities, for simplicity, we have tabulated each Chair in only one area.

**Table 1: Current deployment, based on existing Chairs and submitted/pending applications**

Research Area	Tier 1 Chairs	Tier 2 Chairs
Addressing environmental concerns and creating a sustainable future	1	4
Understanding our origins	4	2
Supporting health across the human lifespan	6	7
Strengthening civil society by advancing justice, equity and social responsibility	3	2
Enhancing our world through technology	7	5
Transforming the landscape of teaching and learning	2	1
<b>Total</b>	<b>23</b>	<b>21</b>

Table 2 provides the estimated number of new deployments in each area over the next three years, taking into account upcoming retirements and completion of CRC tenure, current searches underway, and new positions. In order to remain flexible to capitalize on new opportunities, or to retain outstanding researchers, these deployments may vary across categories, depending on new allocations of Chairs as determined by the Secretariat, opportunities for expansion in new areas, and exceptional circumstances.

**Table 2. Projected deployment of new Chairs over the 2017-2020 period**

Research Area	Tier 1 Chairs	Tier 2 Chairs
Addressing environmental concerns and creating a sustainable future	1	2
Understanding our origins	1	2
Supporting health across the human lifespan	1	2
Strengthening civil society by advancing justice, equity and social responsibility	1	2
Enhancing our world through technology	1	2
Transforming the landscape of teaching and learning	1	2
<i>Retaining excellence and capitalizing on new opportunities (flexible deployment)</i>	1	1
<b>Total</b>	<b>7</b>	<b>13</b>

**Institutional track-record and new developments for research and training**

Through research excellence, seamless partnerships, and increased impact, SFU has advanced as a leading research-intensive university, supporting the full spectrum of research. This strategy has helped

shape the profile of our research capacity in priority areas, and will continue to guide the direction of our growth in research by helping the university respond to new opportunities, direct resources to areas of strategic growth, and drive initiatives forward to enhance its performance. Over the last five years, we have supported interdisciplinary research clusters that advanced SFU’s thematic areas of research with the Community Trust Endowment Fund, which funneled significant investment to increase collaboration, and support training. Through the Vice-President, Research Bridging Grants Program, we have ensured the continuation of excellent research between granting cycles, and supported graduate training programs with increased Graduate Fellowships. Through collaboration with major national consortia, including Compute Canada and TRIUMF, we have strengthened our collaborative networks across Canada, and recruited established and emerging leaders in key areas. SFU’s Big Data Initiative is another recent example of major university investment to build capacity in a priority area to benefit interdisciplinary research and training activities across the university. Through collaboration with local municipalities and businesses, we have built significant capacity in research and technology transfer through initiatives like the Innovation Boulevard, to accelerate innovation in health technology. SFU’s highly regarded 4D LABS is now a core research facility to deliver a swath of breakthrough materials research, open to academic, government, and industry partners.

As Canada’s leading engaged university, SFU has built a significant network of community-centred partnerships, and supported initiatives to strengthen indigenous health and educational systems, including language revitalization, promoting Indigenous business opportunities, and facilitating efforts to drive change and social welfare. SFU will continue to identify ways to support contemporary and innovative research spaces while managing the challenges and limitations of its aging infrastructure. State-of-the-art facilities are a critical element in supporting ground-breaking research and innovation. By capitalizing on opportunities with government and industry, and through internal mechanisms, SFU will enhance and expand its infrastructure to meet the evolving demands of a research-intensive university.

**Inter-institutional and inter-sectoral collaboration**

Interdisciplinary, institutional, and sectoral collaborations are at the heart of SFU’s research strategy. Research in the humanities and social sciences, for example, informs new directions in science and applied science. Similarly, advances in science and technology help shape new fields in the fine and performing arts, humanities and social sciences. It is by connecting these diverse and cutting-edge research strengths that SFU researchers forge new approaches to significant challenges.

SFU’s collaborative vision will be achieved by facilitating seamless connections with diverse stakeholders—across academia, communities and the private sector—to open the door to the exchange of knowledge, resources, and discoveries for the benefit of society. The goal is to establish a seamless continuum of partnerships to strengthen the interplay between research and innovation and to enhance social, economic, and environmental wellbeing. These collaborations will be decisive in overcoming the following principal challenges identified in the SRP:

- *Addressing environmental concerns and creating a sustainable future* by consulting and working with local and international communities to ensure that research informs decision-making and enables actions that improve the global welfare of people and the planet;
- *Understanding our origins* by promoting and supporting multiple modes of inquiry and fostering collaboration across research disciplines;
- *Supporting health across the human lifespan* by combining diverse disciplinary expertise that will lead to cutting-edge interventions, models, and policies that improve diagnosis, and

healthcare delivery and outcomes. This requires collaboration between researchers, policy makers, health institutions and practitioners both from the public and private sectors;

- *Strengthening civil society by advancing justice, equality and social responsibility* and by linking key questions to action that drives change and builds critical capacities across sectors, including education, business, government and the wider community;
- *Enhancing our world through technology* by working in coordination with industry. SFU supports technology research clusters that are based on multi-sectoral partnerships in order to put fundamental research in the service of the people and the economy; and
- *Transforming the landscape of teaching and learning* by embracing novel technologies and widening the scope of education and knowledge dissemination.

Overall, multi-level collaboration is a key element in SFU’s research strategy. SFU’s vision is built on the concept of engagement, which entails working with diverse communities to achieve progress. Research is an important element of this vision.

### **Assessment of success in meeting objectives**

SFU’s 2016-2020 SRP strengthens the university’s leadership in research and knowledge mobilization through forward-looking strategic priorities. In order to effectively create and capitalize on strategic opportunities, SFU is required to continually assess its progress in meeting the goals of the SRP. Each year, the Vice-President, Research will develop operational plans that reflect on our achievements and outline key actions to help deliver on these goals. These annual plans will be drafted in consultation with the Vice-President, Academic, the Dean of Graduate Studies, the Library, and the Faculties, as well as the Research Operations units. Engaging with internal partners will enable SFU to build its core strengths and capitalize on opportunities through coordinated and agile approaches.

### **Planning and approval process**

In September 2015, the Office of the Vice-President, Research began a year-long university-wide consultation process to articulate a transformative agenda for SFU’s growing research enterprise. Using SFU’s vision as its touchstone – *to be the leading engaged university defined by its dynamic integration of innovative education, cutting-edge research, and far-reaching community engagement* – we envisioned a high-level set of forward-looking strategic priorities to serve as an inclusive platform for researchers to engage across disciplines, leading to high impact, breakthrough discoveries and innovations.

An Advisory Committee was set up with representation from eight Faculties and the SFU Library. The Committee, chaired by the Vice-President, Research, contributed to and considered the perspectives of the university community, and provided focused input on the written development of the SRP. A series of open fora were held that included participation from faculty members, staff, librarians, students, and postdoctoral fellows to get their perspectives on:

- SFU’s aspirations as a research institution;
- areas where SFU can achieve research excellence and become a global leader; and
- opportunities to strengthen services, linkages, and structures to better serve the community.

Feedback was also solicited through social media, email, and in-person consultations. Through this iterative process, a series of overlapping challenges and clusters was developed to define our priorities and approaches going forward. In addition, three broad strategies were developed to help SFU respond to new opportunities, direct resources to areas of strategic growth, and drive initiatives that enhance research performance. The SRP was finalized in October 2016.