

Strategic Research Plan Summary – Kwantlen Polytechnic University (KPU)

1 Major Objectives

KPU's Strategic Research Plan (SRP) brings together research, scholarship, experiential learning, and innovation as central elements of KPU's mandate. The SRP integrates our core elements of teaching and learning with research and scholarship, and builds upon industry, government, and community partnerships. KPU is committed to working with all three levels of governments, and with industry and community partners to promote discovery, to cultivate innovation, and to mobilize, share, and apply knowledge for the benefit of our local and global communities. With five campuses in a fast-growing region of British Columbia (BC), KPU serves 20,000+ students annually through 120+ programs, including 40 degree programs. KPU is well poised to be a learning ecosystem rooted in a culture of sustainability, creativity, and quality that inspires our people and our communities.

The SRP identifies seven key characteristics that help KPU meet its provincial mandate as a regionally-focused, special purpose teaching university: (1) experiential learning; (2) discovery and innovation; (3) knowledge mobilization and transfer; (4) creative thinking; (5) critical thinking; (6) effective communication; and (7) research skills. KPU's comprehensive approach enables scholarship and professional development for our employees, experiential learning for our students, currency in our academic programs by incorporating knowledge synthesized through research, and economic, social, and environmental impact through our partnerships. KPU's polytechnic mandate is to build innovative and creative external partnerships and craft experiential learning opportunities for students to connect theory with practice, true to KPU's tagline of "Where thought meets action." KPU's commitment to student success dovetails the broader K-12 transformation underway in BC. In its Academic Plan 2023, KPU has committed to providing every student with an experiential learning opportunity before they graduate.

The strategic directions of the SRP that connects key communities of interest with KPU scholars and students are to: (1) build intellectual and resource capacity around a mosaic of themes that transcend traditional administrative and disciplinary boundaries; (2) align with the strategic and academic priorities of the institution, and define a research culture that is responsive to our communities of interest; (3) promote a culture of scholarship that aligns experiential learning with discovery and innovation; and (4) develop and support strategic partnerships that enable research clusters to collaborate with industry and community groups in developing innovative inter-disciplinary approaches to solving problems and building communities in our region and beyond.

2 Strategic Research Areas

KPU has identified Healthy Communities, Society, Sustainable Thinking, Technologies, and Design Thinking as five inter-dependent and inter-disciplinary themes to develop and maintain excellence.

2.1 Healthy Communities

Canada urgently needs to develop and implement innovative solutions for the health and wellness of an increasingly aging population as well as for all Canadians. There is also a need to foster health and social equity in diverse populations. KPU has also recognized an opportunity to bring together medical, wellness, independent living, and digital health technologies with business and market expertise and clinical product development. KPU is making a significant investment to deploy health technologies and train more people in its use. This research area is highly collaborative, involving multiple areas of expertise from the health and technology sectors, post-secondary institutions, and government. The Fraser Health Region which encompasses multiple Lower Mainland health authorities and cuts across

KPU's Surrey, Tech, and Langley campuses is the largest health region in BC. This region is rapidly growing and solutions to address complex health needs across a diverse population are needed.

Anchored by KPU's Faculty of Health and with significant active engagement from the Faculty of Science and Horticulture among other areas, research strengths are in the areas of health promotion, nutritional informatics, mental health and addictions, professional practice (e.g. nursing), Indigenous health, medical anthropology, chronic condition (e.g. AIDS, cardio-vascular disease) prevention and treatment, perinatal care, relationship violence, ethics, sleep quality, effects of fatigue on health, and complementary medicine (e.g. yoga, traditional Chinese medicine). Innovation activities include: health-related digital technologies, genomics, analysis of diverse health datasets for program and policy decision making, and development of health products aimed at prevention and treatment.

KPU proposes a Tier 2 CRC in the area of nutrition informatics with aims to optimize the application of data and knowledge for food- and nutrition-related problem-solving and decision-making. This CRC research program focuses on applying nutrition informatics to develop the knowledge and resources required to prevent and treat non-communicable diseases in diverse populations. The research will integrate expertise in health behaviour and education, personalized nutrition, digital reality applications, and mixed methods within a multidisciplinary, fundamental, and translational research framework with the aim of advancing knowledge, research, policy, and practice related to nutrition informatics and how it can support self-management of health among diverse populations.

2.2 Society

The impact of recent and rapid change on societies, cultures, languages, and values is evident every day. Events and migrations unfolding worldwide have and will alter our societies irrevocably. The Society theme encompasses issues that affect populations and communities locally, nationally, and globally. By utilizing various branches of knowledge, research in this area will increase our understanding of cultural evolution and societal change by facilitating the examination of cultural and social policy. KPU is engaged in scholarship that informs one's ability to manage change for future benefit. Research in this area will allow for analyzing and synthesizing information in innovative and creative ways to empower life-changing ideas. KPU's large Faculty of Arts, with degree programs in disciplines such as English, psychology, sociology, anthropology, and criminology anchors research in this theme. Students are significantly involved through research assistantships and honours degrees.

Some research and community engagement highlights include: the National Refugee and Resettlement Conference; Connecting Minds Conference; the International Teaching of Psychology Conference; the Interdisciplinary Undergraduate Research Conference; Northwest Cognition and Memory Conference; and many in-house research conferences. KPU has also been instrumental in providing a safe haven to writers and artists at risk in its partnership in International Cities of Refuge Network through the city of Surrey. KPU is also home to innovative projects: 'The Visual Media Workshop' project in Journalism and Communication Studies, a SSHRC-funded Indigenous burlesque project, the KPU Social Justice Centre, an initiative focused on developing a KPU-based centre to function as an umbrella organization and local incubator for community advocacy and civic change, KPU's film journal, *Mise-en-scène*, and KDocs, a documentary film festival hosted by KPU.

KPU proposes a Tier 2 CRC in the area of South Asian Literary and Cultural Studies. KPU is perfectly positioned to host the proposed Chair as it has its biggest campus in Surrey. Surrey is home to the second largest concentration of South Asian Canadians (SACs) with over 30% of the population identifying themselves as of South Asian heritage. Cities within KPU's catchment area also have a sizeable population of South Asian Canadians. For example, 25% in Abbotsford, 7% in Richmond, and 8% in Burnaby identify themselves as SAC. The Canada Research Chair in South Asian Literary and

Cultural Studies will examine the contributions of South Asian Canadian writers and filmmakers from 1910 to 2010, an under-examined yet significant area of Canadian cultural production. This research will raise awareness about how these artists have fostered a just and empathetic Canadian society. Using an intersectional social justice and critical hope framework, the Chair will analyze literary and visual texts to establish theories of interpreting creative expressions as sites of socio-political change and activism. Outcomes include a monograph, a multilingual literature anthology, community engagement events, and an open-access digital portal.

Areas of research focus include: South Asian literary and cultural studies, Indigenous community development, South Asian community development, positive psychology, cognitive psychology, addictions research, safe communities, criminology, and urban design. Research strengths include the studies on protective factors that steer at-risk youth away from gangs and crimes. KPU also hosts a Tier 2 CRC (now in its second term) in the area of lifespan cognition, within cognitive psychology.

2.3 Sustainability Thinking

Preserving our environment and producing healthy and nutritious food to support our growing world population are among the greatest challenges of our time; meeting these challenges necessitates solutions that are efficacious, environmentally sustainable, and cost-effective. KPU is emerging as a leader in BC in promoting a range of sustainability initiatives in agriculture, horticulture, food systems, environmental protection technology, and public policies aimed at reducing unsustainable practices.

KPU has two well-established research institutes: the Institute for Sustainable Horticulture (ISH) and the Institute for Sustainable Food Systems (ISFS). These institutes are making groundbreaking contributions to our understanding of how to advance sustainable horticulture and food systems in BC and beyond. The ISH was created as a partnership between academia, horticulture industries, and communities to support BC in meeting demands for a higher level of sustainability and environmental responsibility from horticulture, silviculture, forestry, and urban landscapes. The ISH facilities are unique in that they include both research and production capacity for new microbial products. ISFS investigates and supports regional food systems as key elements of sustainable communities, with a focus predominantly on BC but also other regions. Research at ISFS focuses on the potential of regional food systems in terms of agriculture and food, economics, community health, nutrition, policy, and environmental integrity. ISFS programming provides information and support for farmers, communities, business, policy makers, and others. Community collaboration is central to its approach. KPU's focus on sustainability thinking involves interaction with, and is relevant to, municipalities, school districts, community organizations, regional small and medium-sized enterprises, regional Indigenous communities, and the public at large.

Areas of research focus include: biological pest management, sustainable urban and peri-urban horticultural practices, integrated horticultural agricultural practices, environmental management, crop yield, green waste management, biofuel production and utilization, greenhouse design, food, economics, community health, policy, and environmental integrity.

2.4 Technology

Technological research and innovation at KPU occurs across multiple disciplines and faculties. It brings together researchers in the School of Business, the Faculty of Trades and Technology, and the Faculty of Science and Horticulture, among other parts of the university. It includes research and innovation in digital, biological, and clean technologies. Areas of research and innovation undertaken by faculty members include: computer science, sensor development, cybersecurity, genomics, advanced manufacturing, augmented and virtual reality, and clean technologies.

KPU is deeply engaged with the City of Surrey and Simon Fraser University on realizing a centre of excellence in advanced manufacturing. KPU is building a Bio-Innovation Laboratory at the Surrey campus with significant institutional, federal, and provincial funding. Another laboratory on augmented and virtual reality is being opened at the Richmond campus. KPU is also engaged with other BC teaching universities through the BC Association of Institutes and Universities on workforce innovation.

An Academic Plan 2023 priority is to develop research across all trades and technology disciplines. The Faculty of Trades and Technology at the KPU Tech campus is self-transforming to train a well-prepared workforce with enhanced technical skills to match an equally dynamic industry innovation agenda.

2.5 Design Thinking

Design thinking seeks solutions to complex human problems in a creative and innovative way. KPU has an established reputation for creative, practical and scholarly contributions to the social and cultural fabric of our communities.

The Chip and Shannon Wilson School of Design at KPU’s Richmond campus is committed to educating design leaders who can ethically transform diverse ideas, produce technology for innovation, and engage with design communities locally and globally. Design Thinking is being addressed at KPU in several disciplines and from a number of interdisciplinary perspectives including scholars and artists with strengths in fine arts, music, creative writing, journalism, and interdisciplinary expressive arts. The Design Research Network based out of the School provides faculty, students, and industry the opportunity to engage in the process of disruptive design thinking, creative exploration, idea transformation, strategic discovery, interdisciplinary co-investigation, and transformative enterprise.

Areas of research focus include real-world sustainable product design, technical apparel, topology optimization, and upcycling of waste materials.

3 Equity, Diversity, and Inclusion (EDI)

KPU is committed to EDI by enacting a wide range of measures in supporting under-represented groups facing socio-economic barriers, including but not limited to: women, Indigenous Peoples, persons with disabilities, members of visible minority or racialized groups, and members of LGBTQ2+ communities. KPU’s President personally chairs the President’s Diversity and Equity Committee which champions EDI across the university. The Associate Vice President, Research (AVPR) and the Associate Vice President, Human Resources directly lead efforts to fulfil KPU’s commitments in the Dimensions Charter. Every new employee completes mandatory courses on respectful workplaces and Indigenous awareness. Every human resources professional, manager, search committee, and supervisor is responsible for ensuring equity in recruiting, hiring, training, development, and promotion decisions. KPU endeavours to provide an inclusive work and learning environment that is supportive of fair and equitable treatment of all members within its diverse community, no matter their background or identity.

4 Allocation of CRCs by Research Area

Currently, KPU has an allocation of three Tier 2 CRCs. The table below outlines their deployment.

Research Theme	Tier and Funding Agency	Time Period
Healthy Communities: Nutrition informatics	Tier 2 / CIHR	2020 - 24
Society: South Asian literary and cultural studies	Tier 2 / SSHRC	2020 - 24
Society: Lifespan cognition (2nd term)	Tier 2 / SSHRC	2018 - 23

The most recent competition for the two Tier 2 CRCs that are proposed to begin in 2020 focused on retention of existing faculty. With permission of the CRC Program staff, KPU exchanged its original

allocation of one Tier 1 CRC for these two Tier 2 CRCs to provide more opportunities for existing faculty members. Since KPU applies for natural sciences and engineering funding with NSERC (Natural Sciences and Engineering Research Council of Canada) under their colleges stream, all CRC nominees from KPU are within CIHR and SSHRC pools.

5 Institutional Support

KPU is committed to the growth of research in its strategic areas through the investment in infrastructure and training. KPU's Office of Research Services supports research development, policy development, grant writing, research administration, legal agreements, internal funding, training, and compliance. Recent support includes institutional cash and in-kind contributions for three Canada Foundation for Innovation grants, multiple NSERC (e.g. Engage, Applied Research and Development, and Applied Research Tools and Instruments), SSHRC (e.g. Connection, Insights, and Insight Development), and CIHR grants. Research support has been provided to students, faculty, and support staff through the Catalyst, Professional Development, Educational Leave, and Creative Capital grants. Significant capital and operating investments by KPU into dedicated built-up research spaces include 1718 sq. m. for multiple laboratories, centres, and the two institutes. In addition, KPU has invested into the Richmond Farm School and the Tsawwassen Farm School for applied research and extension activities.

6 Planned Collaborations

KPU has developed numerous impactful collaborations with industry, community, and academic partners since its founding in 1981. Notable collaborations include those with Healthy Communities (e.g. Fraser Health Authority, Centre for Child Development in Surrey and Langley, dnaPower, BC Ataxia Society), Society (e.g. Science World, City of Surrey), Sustainability Thinking (e.g. City of Richmond, Sylvar Technologies Inc., Western Canada Turfgrass Association, Tsawwassen First Nation), Technology (e.g. City of Surrey, Royal Canadian Mounted Police, Institute of Electrical and Electronics Engineers), and Design Thinking (e.g. Simon Fraser University, Government of Canada).

7 Measuring Success in Meeting Objectives

In accordance with KPU's Strategic Plan, success will be measured by: (1) increasing support for research and scholarship activities; (2) increasing the amount of funding for research and scholarship activities conducted by employees; (3) increasing the intensity of research and scholarly activity; (4) increasing the amount of research and scholarly activity; (5) increasing the impact of KPU research; and (6) engaging local industry, non-governmental organizations, community organizations, and businesses to address economic and social needs for the prosperity of our communities. In addition, KPU will also measure success in fulfilling its EDI commitments under the Dimensions Charter, including tracking and monitoring gender and intersectional representations.

8 Planning, Approval, and Renewal Process

The AVPR, in consultation with the Provost and Vice-President, Academic and others on the KPU Executive Team, allocates chairs to academic areas through an open, transparent, and equitable process complying with the CRC Program and in line with institutional priorities. The decision for CRC allocations was influenced by alignment with research in priority areas, planned growth of academic programs, and faculty development and retention.

Renewal of CRCs will be based on the chair-holders meeting CRC Program's criteria for Tier 2 renewal in addition to KPU-specific criteria, including involvement of students, research outputs and impact, and mentoring of emerging researchers, especially those from under-represented groups at KPU.