

Strategic Research Plan Summary

Kwantlen Polytechnic University (KPU): 14 May 2024

1 Major Objectives

KPU's Strategic Research Plan (SRP) brings together research, innovation, scholarship, and experiential learning as central elements of KPU's mandate. The SRP integrates our core elements of teaching and learning with research, innovation, and scholarship, and builds upon industry, government, and community partnerships. KPU is committed to collaborating with all levels of governments, with Indigenous communities, 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 about 40 bachelors programs. KPU is well poised to be a learning ecosystem rooted in a culture of sustainability, creativity, and quality that positively impacts our people and our communities.

This SRP identifies seven key characteristics that help KPU meet its provincial mandate as a regionally-focused, accessible, special purpose teaching university engaged in applied research and scholarly activity in support of its programs: (1) experiential learning; (2) discovery and innovation; (3) knowledge mobilization and transfer; (4) creativity; (5) critical thinking; (6) effective communication; and (7) research competencies. KPU's comprehensive approach fosters scholarship and academic excellence for its employees; experiential learning for its students; program currency by incorporating knowledge synthesized through research; and economic, social, and environmental impact through its partnerships. As Canada's only polytechnic university, KPU strives to further exemplary external partnerships and craft experiential learning opportunities for students to connect theory with practice, true to its brand of "Where thought meets action." KPU's commitment to student success dovetails BC's broader K-12 transformation. Under its Academic Plan 2023, KPU committed to provide every student with an experiential learning opportunity before graduation.

The strategic directions of the SRP that connects key communities of interest with KPU educators and students are to: (1) build intellectual and resource capacity around themes that transcend traditional boundaries; (2) align with the strengths and priorities of KPU, and define a research culture that is responsive to our communities of interest; (3) recognize and promote diverse scholarship that aligns experiential learning with discovery and innovation; and (4) develop strategic partnerships that enable clusters to collaborate with industry and community. All of these contribute to 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, Social Inclusion, Sustainable Development, Technological Transformation, Design Solutions, and Work and Learning as six 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 and address the impact from the COVID-19 pandemic. 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 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. The development of Surrey's second hospital and the associated oncology centre adjacent to KPU Tech campus provides unprecedented collaborative research and innovation opportunities.

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 had previously hosted a Tier 2 CRC in 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 focused 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 Social Inclusion

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 Social Justice Centre, an initiative focused on developing 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 hosts a new Tier 2 CRC in the area of South Asian Literary and Cultural Studies. KPU has three campuses 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 CRC in South Asian Literary and Cultural Studies examines the contributions of South Asian Canadian writers and filmmakers from 1910 to 2010, an under-examined yet significant area of Canadian cultural production. This ongoing 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 analyzes 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 hosted a recently concluded Tier 2 CRC in the area of lifespan cognition, within cognitive psychology.

2.3 Sustainable Development

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 also relies on its Sustainable Agriculture program and 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, wetland conservation, biofuel production and utilization, greenhouse design, food, economics, community health, policy, and environmental integrity.

2.4 Technological Transformation

Technological research and innovation at KPU occur 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 researchers

at KPU include: digital humanities, computer science, sensor development, cybersecurity, genomics, advanced manufacturing, augmented and virtual reality, and clean technologies.

KPU is building genomics and metabolomics research capacity through the new Applied Genomics Centre at the Surrey campus with significant institutional, federal, and provincial funding. Another laboratory on augmented and virtual reality has opened at the Richmond campus. KPU is also engaged with other BC teaching universities through the BC Association of Institutes and Universities.

An academic 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 Solutions

KPU 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.

Enhanced through a NSERC Mobilize grant, the Chip and Shannon Wilson School of Design 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 Solutions 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 Wilson School of Design 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.

2.6 Work and Learning

Given the unprecedented disruption we are in, KPU has identified Work and Learning as a sixth theme. Research and innovation into this theme future-proofs KPU, informs all academic and administrative programming, and brings together significant investments and work already underway through the Teaching and Learning Commons (e.g. Teaching and Learning Innovation Fund), Office of Planning and Accountability, and through the newly formed Research and Innovation Division. This work furthers the core academic mission of the university. Areas of research and investment include digital pedagogies, work-integrated learning, open education, micro-credentials, graduate studies, equity, diversity, and inclusion (including Anti-Racism), indigenization, and open innovation. Internal KPU communities involved strategically include the Sustainable Enrolment Planning Council. This theme results in resilience and nimbleness for KPU, enable the university to be entrepreneurial in seizing opportunities, and helps define KPU's identity as a polytechnic university.

3 Equity, Diversity, Inclusion, and Decolonization (EDID)

KPU is committed to EDID 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 chairs the President's Diversity and Equity Committee which champions EDI across the university. KPU has endorsed the Dimensions Charter and is advancing Anti-Racism work and the development of an institutional EDI Action Plan. 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 Institutional Support

KPU is committed to the growth of research in its strategic areas through the investment in infrastructure and training. To-date, the University has endowed \$10 million with the KPU Foundation and investment income will be dedicated for advancing research throughout the university. KPU's Office of Research Services supports capacity development and promotes excellence across the entire life cycle of research endeavours: including 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 four Canada Foundation for Innovation – B.C. Knowledge Development Fund grants, multiple Tri-agency, and Mitacs grants. Research support has been provided to students, faculty, and support staff through the Komplement, Professional Development, Educational Leave, Chancellor's Chairs, endowed research chairs, and Creative Capital grants. Significant capital and operating investments by KPU into dedicated built-up research spaces include 1,718 sq. m. for multiple laboratories, emerging centres, and the two institutes. In addition, KPU has invested into farmer training and incubation programs at various locations, including the Richmond Farm, Garden City Lands, and the Tsawwassen First Nations for applied research and extension activities.

5 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), Social Inclusion (e.g. Science World, City of Surrey), Sustainable Development (e.g. City of Richmond, Sylvar Technologies Inc., Western Canada Turfgrass Association, Tsawwassen First Nation), Technological Transformation (e.g. City of Surrey, Royal Canadian Mounted Police, Institute of Electrical and Electronics Engineers), and Design Solutions (e.g. Simon Fraser University, Government of Canada).

6 Measuring Success in Meeting Objectives

As per KPU's Strategic Plan (Vision 2026), Goal C2: We will expand activity, funding, intensity and impact of research, scholarship and innovation partnerships, success will be measured by:

(1) Growing supports for research, innovation and scholarly activities conducted by KPU employees and students; (2) Increasing the amount and intensity of research, innovation and scholarly activity, both inside and outside of curriculum; (3) Expanding capacity for research and scholarship in order to promote and foster excellence across the university's research enterprise; (4) Engaging business, industry, non-profit, government, academic and Indigenous organizations to address economic, environmental and social needs of our communities; (5) Increasing the impact from research, innovation and scholarly activities on KPU and on our region; and (6) Increasing visibility and showcasing achievements in research, innovation and scholarly activity undertaken by members of KPU community.

KPU's Office of Planning and Accountability coordinates reporting of metrics related to this and other strategic goals to the Board of Governors and the Government of British Columbia every year.