Draft Research Strategy: Discussion Document

Office of the Vice President Research & International

a place of mind

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Guidelines for Use

This document is a working draft of UBC's revised strategic research plan. It also contains significant commentary intended to generate thoughtful discussion and response. Sections of text inside a box, such as this one, are presented as *commentary* and not as elements of the strategic plan.

To submit feedback on any portion of this document, please complete the online survey at: http://www.surveyfeedback.ca/surveys/wsb.dll/s/1g5ed.

1.0 What is this document?

In December 2009, UBC released its new, strategic plan, *Place and Promise*. One of the central commitments in *Place and Promise* was to Research Excellence, and a number of specific goals and actions were given. The purpose of this research strategy is to provide some background and more specific details about those goals.

This document is the second publicly released draft of the research strategy, and has been developed after extensive consultation with the UBC community. Initial drafts of this document were developed in consultation with the Associate Deans Research (ADRs) and several groups of researchers; in turn, the ADRs consulted within their respective faculties. The Deans were also consulted during the development of this document, and the result was a draft discussion document that was presented to Senate at the end of March. At that time the previous draft of this document was also posted on the Web and the entire UBC community was invited to comment. About 100 comments were received from students, staff, faculty, and the external community. While it would not be possible to incorporate every suggestion received into a strategy, this version has been revised based on the comments. *It is worth noting that a number of very thoughtful, specific, and extensive comments were received after our April 16 deadline for Senate, and not all have been incorporated into this draft as more consideration is needed of these excellent ideas.*

This document will be presented to Senate in its current form for discussion on May 12, and we shall continue to receive and consider feedback from the UBC community through our website. The goal is to generate a strategy that will continue to evolve, so while we hope to have a posted version of the research strategy by summer, it is our hope that this will be a living document. In fact, some of the recommendations given here will be quite preliminary and are meant to signal a need to investigate an area or issue before a detailed action can be proposed.

This strategy focuses attention on UBC's Vancouver campus; research strategies are largely campus-specific as they are closely tied to academic programs. While some elements of the strategy do apply to all of UBC, it was thought that since the Okanagan campus has defined its research strategy[1], this document should focus attention on the Vancouver campus, including the main health research institutes where much of the University's health research is conducted. Thus, throughout this document when UBC is referred to, it is the Vancouver campus that is being referenced.

[1] UBC Okanagan's research strategy is published online at:
http://web.ubc.ca/okanagan/provost-research/__shared/assets/Strategic_Research_Plan8572.pdf

As shall be discussed below, there are several types of scholarly activity at a large university like UBC. It is typical to refer to these activities as research, scholarship, or creative arts, although the definition of what is meant by those labels is not always clear, and sometimes the names have certain values attached to them. For the purposes of this strategy, all the different types of scholarly work done at UBC will be referred to as "research" to simplify the terminology. Similarly, our research can be carried out in partnership with, or be important to, a number of external groups, including companies, government organizations or departments, research labs, civil society organizations, community groups, and Aboriginal communities. In this document, "external communities" will refer to these groups or organizations, unless a specific group is being discussed.

2.0 Introduction to the Research Strategy

The UBC strategic plan, *Place and Promise*, was published in December 2009 and was developed through an extensive consultation over much of the preceding year. Of *Place and Promise's* numerous commitments, three are highlighted as central to the University's mission: Student Learning, Research Excellence, and Community Engagement. This strategy focuses on Research Excellence and specifically, how the University should promote and nurture it. While excellence is difficult to define or measure, it is a concept that is generally understood at a major university such as UBC (at least, individual researchers understand what excellence means within their own fields). While it would be unrealistic to expect excellence in all UBC research, the goal of a major university must be to achieve it in as many different fields as possible.

In *Place and Promise*, the notion of what constitutes research excellence is given in our commitment statement:

- *The University creates and advances knowledge and understanding, and improves the quality of life through the discovery, dissemination, and application of research across a wide range of disciplines.*

This compact statement of purpose and commitment describes the core of research excellence as we understand it at UBC. A university must value research whose main purpose is to create knowledge and understanding, including the creation of artistic works. Such research changes the way we understand ourselves and our world, and enriches our lives. Equally important is research that is more goal-oriented: improving health, reducing poverty, reducing environment impacts, creating jobs and strengthening the economy—essentially, the creation of research that that makes communities more sustainable and society more robust. It is critical that we support and value both types of creative research, and that we resist viewing them as opposing or conflicting endeavours.

Improving our efforts to commercialize some of our research results should never come at the expense of research that does not have a clear commercial application. In the same way, it is wrong for us to view research that seeks to improve society as less valuable than research that has a major scholarly impact. While all types of research must be promoted, it is vital that universities vigorously promote research of a fundamental or basic nature (i.e., research that does not have a clear application or commercial outcome) as this type of research is typically least understood or valued by the broader community.

3.0 The Importance of Research at UBC

It is clear that excellent research is one of the central aspects of UBC's mission, as recognized in *Place and Promise*. Our international reputation is largely based on our research. While all universities have an important teaching mandate and should strive to create the best possible learning environment for their students, at major research-intensive universities like UBC the meaning of "learning environment" incorporates research to a far greater extent than at smaller universities, and graduate education is a much more significant part of our teaching mandate. Further, while all universities conduct research, at a major and well-funded university such as UBC that is ranked among the world's leading universities, there is an obligation to conduct research that leads and defines the field, in as many different fields as possible. It is recognized that not all research and not all researchers will meet this standard, and that incremental advances will also contribute to our research and education missions. This strategy will focus on promoting research that is at the leading edge.

One of the central roles of a large, research-intensive university is to carry out research that contributes to the educational mission of the university and also has an impact on society and the world. The modern university is a unique institution, evolved over many centuries to be one of the leading drivers of change in society. In no other institution is research conducted across such a diverse range of disciplines with researchers enjoying the freedom to choose their own topics of study and having the right (and even the obligation) to disseminate the results openly. Further, this research is carried out by a mixture of faculty, staff, and students, and is integrated with the education of those students, creating a constant renewal of the research enterprise. For research that is intended to have a more immediate impact on our world, the university must facilitate maximizing that impact; impact is one of the more important measures of excellence for this type of research.

3.1 Defining "Excellence"

While everyone at a university should have some understanding of what excellence means, it is a great challenge to come up with a simple definition of excellence that is applicable across all domains, and to create unbiased ways of measuring it. It is broadly accepted that one of the most important measures of excellence is peer review, or the opinion of other researchers about a given body of work. This is the basis for most academic publishing, for the awarding of most research funding, and for assessments such as the Research Assessment Exercise (RAE) that is conducted in the UK every seven years. Because peer review is complex, as the RAE shows, surrogate measures are often used, such as: funding levels (compared with the norms for a given area), bibliometric analysis (citations, etc.), external awards and prizes to researchers, invitations to present at prestigious conferences, fellowship in prestigious societies, international collaborations, and service on important committees and boards. Rankings of universities will often use a mixture of peer review and these other measures in combination; the new version of the Times Higher Education rankings is an example.

While these metrics are valid for much of the research effort, they neglect to measure possible research impacts, such as informing public policy decisions, improving health care, or creating wealth. These impacts should also be considered when defining what makes excellent research as there are many areas of research where the impact is more important than scholarly publications. Because we are a university, we also need to be concerned about the role research plays in our training mission, as education is one of the important outcomes of our research effort.

3.2 Defining "Impact"

It is important to clarify the meaning of *impact*, as recent discussions about commercializing the results of university research have led in much of the public discourse to a narrowing of the definition of research impact into one of a commercial outcome, or a combination of commercial and health outcomes. This is too narrow a view, as research at universities can have a profound impact on the way we understand ourselves and others, changing society for the better. Excellent research can change public policy, help us to understand and eliminate conflict, and help to create a better society. Of course, much of the research at universities will lead to a stronger economy, more jobs and better health outcomes.

Although it is risky to create a single summary of meaningful impact for research, perhaps the notion that excellent research can create a better quality of life or a better world is one that embraces the full scope of our efforts. This definition of excellence also values research that doesn't have a commercial outcome or specific application. This emphasis on research impact, in addition to research excellence, is reflected in our vision statement in *Place and Promise* to "support outstanding research to serve the people of British Columbia, Canada, and the world."

3.3 Defining "Areas of Excellence"

Although any strategy will highlight certain research areas or themes as being important to the university, it should be clearly understood by the readers of that strategy that *this is not an attempt to steer the research of the university community down defined paths*. The direction of research and the areas of emphasis are driven by a number of factors; among the most important are researcher interest, community need, and government and the priorities of funding providers.

University research strategies typically enumerate a number of areas of research deemed important to the university. Such lists are rarely informative as they generally list areas of current strength within the university research portfolio, and to minimize hurt feelings they try to work in the efforts of as many researchers on campus as possible. Furthermore, the most important determinant of areas of research excellence comes from the recruitment strategies of academic units and the areas of research focus of affiliated institutes. Thus, faculties or institutes will develop their own academic plans, and this may create areas of concentration. A current example at UBC is the Faculty of Medicine's focus on Brain Health as one of its strategic areas.

What can be done is to use examples of research excellence that exist at UBC to help illustrate various aspects of what is meant by excellence. The strategy can also point to thematic areas that have been identified in *Place and Promise* as being important to UBC, as any strategy must support the overall vision defined in *Place and Promise*.

3.4 Diversity of research

One of the greatest strengths of a large, research-intensive university is the range of research activities. This range of activity defines the cultural framework of the university community and creates an environment around the university that is critical to its social, cultural, and economic well-being. From creative and performing arts, where the production of a work of art or a performance is the scholarly creation, to engineering where the goal might be to improve an industrial process, all research at the university can contribute to improving lives, enriching culture, and furthering education.

However, a diverse research effort also creates a challenge when formulating a research strategy and providing appropriate support for that research. For those engaged in more solitary research, such as in pure mathematics or some humanities disciplines, significant research funding is far less vital than access to excellent library resources and time for detailed reflection. Research in the creative arts does require significant financial support, but this cannot be obtained through standard research grants. Most research does require significant external financial support, and support is increasingly needed for complex multidisciplinary projects, in addition to the standard types of projects driven by one or a few single-discipline investigators. For UBC to achieve its full potential, this diversity of needs must be recognized and strategies developed to support these various requirements.

3.5 Conducting research ethically

As a public institution, we have an obligation to conduct research to the highest ethical standards. While it is important not to create a system of ethical approvals that are so complex and cumbersome that they impede the research process, we also must attend to our obligations to the many communities that are involved in the research effort. There are clear statements of ethical requirements for all research conducted at UBC (e.g., the Tri-council Memorandum of Understanding). For research undertaken in partnership with communities, including community-based research, there is an obligation to work in true collaboration with these communities as equal partners in the research project. This is especially important for work with Aboriginal communities or vulnerable populations, which in the past have not always been treated as equal partners by some researchers.

4.0 Defining Excellence: selected examples

In the final form of the research strategy, this section will not exist. Given here are possible examples of various aspects of research excellence at UBC that will be used in sidebar discussions throughout the strategy document. All the examples listed alphabetically below have attracted considerable international attention but they display different aspects of research excellence at UBC.

Commentary: As with any major university, areas of research strength have evolved and will continue to evolve through a mixture of fortunate circumstance and design. While it is always a dangerous thing to "pick winners" from our very large research portfolio, there is value in using some examples to define aspects of research excellence, as long as it is understood that the examples are not comprehensive or exclusive. With this in mind, some possible examples are listed below, with the reasons why they are being highlighted.

Among the comments received about the previous draft document were several about some of the choices given below. Some were disagreements about the choices, or comments on the descriptions used, or possible extensions and modifications. There were also some suggestions for additional areas that should be highlighted in addition to or in place of these ones. I have left the original list alone, but intend to continue working to refine these choices and descriptions.

- The **Centre for Drug Research and Development** (CDRD) builds on our excellent drug discovery research and provides a new model for drug development and commercialization. UBC played an important role in establishing CDRD and is a major partner and host to this Centre of Excellence for Commercialization and Research. CDRD is unique in Canada and there are very few similar

organizations anywhere in the world. As a result, it has attracted national and global attention as an innovative answer to a common problem in translating laboratory results into new treatments.

- The **Centre for Interactive Research in Sustainability** (CIRS), a green building currently under construction, is not just one of the world's most sustainable large buildings—it is also a technical and social experiment. An example of strong partnership with external groups and companies, and it will be a centerpiece for UBC's Sustainability Initiative.
- Important research into the treatment and prevention of **HIV/AIDS** is conducted by several research groups at UBC and at affiliated health research institutes. Much of this research has addressed vulnerable communities in BC, most notably in the Downtown Eastside. In addition to setting new standards for treatment of HIV/AIDS, this research has had enormous public policy impact and international reach, and has established UBC as one of the world's leading centres in this area.
- The new *Partnership of Peoples* project at the **Museum of Anthropology** (MOA) showcases UBC research from several cultural viewpoints. The renovation undertaken for *Partnership of Peoples* was a significant demonstration of Federal and Provincial investment in UBC research through the Canada Foundation for Innovation and BC Knowledge Development Fund, and it remains one of the most important CFI awards nationally in the social sciences and humanities. MOA is significant to UBC research because it creates a new platform for collaborations between university researchers and Aboriginal communities, and sets new standards for the way museums understand and display cultural artifacts.
- **Quantum materials** is one area of UBC research in which a critical mass of internationally renowned investigators have established a research cluster that is one of the best in the world in its field. Built on long-standing strength in condensed matter physics at UBC, this group has been built up through Canada Research Chair appointments and significant success in attracting external research funding. Their research excellence is reflected in the impact of their publications, major national and international awards, and substantial international partnerships with some of the world's leading universities and research institutes.

5.0 Key Theme Areas and Partnerships

Place and Promise gives nine commitments, one of which is Research Excellence. While each commitment has a linkage to research, some are more directly related to research and should be addressed in the Research Strategy. Many of the commitments are related to UBC's engagement with external communities. UBC research is increasingly undertaken in partnership with external communities who help to define and conduct the research, apply the results, or pay for the work. Among the most significant of these partnerships are in health research, involving affiliated Health Authority research institutes, community health care agencies, advocacy groups, and hospital partners. With this in mind, some of the research areas, themes, and partnerships that are strategically important to UBC are given below.

Commentary: In addition to the goal of building areas of research excellence at UBC without targeting areas of research, the research strategy must take into account factors that are vital to UBC's overall strategy. In *Place and Promise*, there are several commitments beyond Research Excellence that have a research component, and the research strategy should reflect this. The specific commitments made in *Place and Promise* are given below, with an explanation of how they fit with a research strategy. In addition, much of UBC research is carried out in partnership with Provincial Health Authorities and the communities they serve, using facilities and personnel

provided by the Health Authorities. The research institutes within the Health Authorities establish their own research agendas and have their own strategic plans. Given the enormous importance of health research, these vital partnerships must be reflected in a research strategy.

Commitment: Student learning

Much of the research work done at UBC is conducted by graduate students, postdoctoral fellows and other research staff; accordingly, there is a very strong connection between research excellence and teaching and learning for those students. However, most of the students at UBC are undergraduates, many of whom are never directly connected to UBC's excellent research. There need to be more opportunities to allow undergraduates to participate in research at UBC, both through direct participation in advanced research, and through being made aware of the excitement of current research going on. For more advanced research trainees, UBC should provide more than an excellent research environment—we must also provide training beyond their specific research projects.

Commitment: Community engagement

One of the central commitments in *Place and Promise*, this will be partly addressed under the goal to become a world leader in knowledge exchange and mobilization, as much of our strategy for that will be to strengthen partnerships with external communities. Community engagement also includes research with Aboriginal communities and community-based research. In general terms, much of the impact from our research will depend on exchange of knowledge with external communities, as that knowledge informs our research effort, and helps our research to have its maximum impact. While now all research directly relies on community engagement, the overall research enterprise will be better supported if the external community (and also the UBC community) is made aware of our research efforts and their importance.

Commitment: Aboriginal engagement

A key commitment in *Place and Promise* is to Aboriginal engagement. This engagement has a research component, as given by one of the actions listed to support this commitment:

- *Strengthen and expand research grounded in significant community collaboration and consultation.*

MOA/Partnership of Peoples has already been mentioned as an example of this type of research, and there are other important examples of successful partnerships within the Faculties of Education and Arts. The Aboriginal Strategy addresses this important area, and the research strategy supports expansion of this effort.

Commitment: International engagement

We are in the process of developing an International Strategy for UBC, so there is not a need to duplicate that effort in the research strategy. However, international partnerships are an important feature of research excellence, and research collaborations are an important feature of any international strategy, and much of the research at UBC has a necessary international component. Support for international engagement will be an important component of the strategy.

Commitment: Sustainability (Campus as living laboratory)

Place and Promise identifies sustainability as one of UBC's strategic commitments. The UBC Sustainability Initiative identifies "campus as living laboratory" as one of its important themes. The CIRS project is an example of this, as is the newly announced bioenergy partnership with Nexterra. These important partnerships to advance sustainability will not be restricted to technology development but will include partnerships in social and health research and policy development, which are equally important features of sustainability.

Partnerships for health research

Health education and research at UBC is carried out in partnership with Provincial Health Authorities and the communities they serve. The importance of this collaboration is reflected in the fact that the majority of our health researchers work at Health Authority research institutes and hospitals, and most of our external funding for health research is awarded to researchers at the Health Authorities. Currently, discussions about unifying the administration of research at Health Authorities are underway, and UBC is working with the Health Authorities to help define this new vision.

6.0 Actions to Promote Research Excellence

Commentary: The language, goals and actions in *Place and Promise* were arrived at through extensive consultation with the entire University community. They are presented here as a framework for the research strategy but *are not subject to revision or commentary* at this time. However, beneath each *Place and Promise* action are numbered suggestions for more defined actions from the VPRI. We invite commentary and feedback on these proposed actions, which form the basis of the Research Strategy.

In *Place and Promise*, one of the important commitments is to research excellence:

- *The University creates and advances knowledge and understanding, and improves the quality of life through the discovery, dissemination, and application of research across a wide range of disciplines.*

A number of actions in *Place and Promise* support this commitment, and these form the basis for providing support for UBC's research effort. The important goals that have been defined for research excellence are:

1. *Increase the quality and impact of UBC's research and scholarship; and*
2. *Be a world leader in knowledge exchange and mobilization*

Meeting these goals will require us to provide better support for UBC's researchers, particularly for interdisciplinary research, research undertaken in partnership with communities and organizations external to UBC, and research with international partners. The specific actions in *Place and Promise* that support the goals given above are still fairly high level, and one of the goals of this section is to suggest specific strategies that will make up these higher-level actions. In the following sub-sections, the action from *Place and Promise* forms the heading for a more detailed set of strategies that will create the overall action.

6.1 Place and Promise Goal: Increase the quality and impact of UBC's research and scholarship

6.1.1 P&P Action: Focus on areas of excellence

It is obvious that the goal of a research strategy is to promote research excellence as its primary goal. The idea of focusing on areas of excellence is a bit more specific, as it implies that not all research nor all research areas at UBC will achieve excellence. There is also an clear implication that while excellence should be promoted wherever it occurs, there is a need to support and build areas of excellence at UBC, meaning groups or teams of researchers who work in a similar area or on a common problem. There is a synergy that develops between groups of leading researchers that creates better research and leads to greater possibilities for research funding.

Research training is also greatly improved if there is a critical mass of excellent researchers in a given area. This attracts better graduate students and postdoctoral fellows, and increases their chances for success. The combination of better and more successful trainees also improves the research effort. In addition to nurturing research excellence, we must do a better job of recognizing and promoting that excellence, especially to the external community. This increases support for university research and enhances our reputation.

This action will create the most comment, as excellence in research is clearly rooted in getting the best researchers (faculty, students, and postdocs) to UBC, providing them with the support necessary for them to excel at research, and retaining them at UBC, independent of field. However, it is also true that we cannot hope to be world leaders in all areas of research, and so decisions have to be made about how to allocate resources in a way that creates global excellence in a few areas. This happens quite naturally in that it is difficult to attract the best talent (faculty, students, and postdocs) unless we have a strong reputation in a given area, and it is even harder to retain that talent unless the research environment is excellent.

Proposed Actions

1. *Provide focused assistance for researchers who are developing larger-scale initiatives, or for specific research funding opportunities as they arise, through an integrated grant facilitation office and better coordination of our network of facilitators.*

   In recent years we have been able to provide support for Networks of Centres of Excellence, Centres of Excellence for Commercialization of Research, and Canada Excellence Research Chair proposals, and other large group proposals, based on methods developed for institutional CFI proposals. While this has led to success in these applications, our efforts are limited by available resources for assisting researchers, which are currently decentralized across our academic units. We need to do a better job of coordinating the activities of unit-level facilitators and using the emeriti faculty to allow more and better work to be done in supporting the development and improvement of these larger proposals. We also need to provide better resources for this effort, which was badly hurt by withdrawal of substantial support from the Michael Smith Foundation for Health Research.

2. *Provide seed funding resources to enable organization of larger initiatives.*

   While it is not good to have long-term research funding from internal sources for these large initiatives, there is frequently a need to provide an initial investment to help get them started. We need to consolidate and clarify the nature of these seed funding opportunities, link them to proposal development, and make researchers aware of available funding opportunities.

3. *Work to develop international partnerships for defined areas of excellence.*

   This overlaps with the international strategy, but it is important to use international connections to strengthen existing areas of excellence. This action is mentioned here as part of the Research Strategy but it will be developed more fully in the parallel International Strategy, which is currently under development.

4. *Evaluate the internal research support programs in order to design and deliver the most appropriate and effective programs.*

   Several internal funds are presently available to researchers, such as the Hampton Fund, the Martha Piper Fund, the Peter Wall Institute, the International Initiatives fund, and various discretionary seed funds. The amount of available money is significant—a few million dollars per year. A task force with broad disciplinary representation will be struck to recommend how these funds could be better coordinated and how they could better support and develop research excellence. This will also serve to improve awareness among researchers about internal funding opportunities.

5. *Increase the number of external research prizes awarded to UBC faculty.*

   When our faculty members win prestigious external awards it not only provides recognition of their excellence (and frequently a financial reward as well), it also greatly enhances the reputation of UBC researchers and the institution. A Presidential Advisory Committee on Major Awards will be established with a goal to increase both the quantity and quality of major award nominations from UBC.

6. *Develop a better understanding of the areas of research excellence at UBC.*

   To better represent ourselves to potential partners and donors, and to better support research excellence independent of field, we need to develop better means of determining our areas of excellence—means that recognize inherent differences between research cultures. This will involve consultation with the faculties and research units, both to understand the factors that contribute to defining excellence, and to support the research priorities being established by the units. This will also help us to be more effective in working in partnership with the Development Office to create opportunities for philanthropic and foundation support of major research efforts.

6.1.2 P&P Action: Increase UBC research and graduate support funding in both absolute and relative terms, including support from non-traditional sources

For most of the research activities at UBC, funding levels strongly influence the amount and quality of research that can be undertaken. In addition, funding levels are frequently tied to our ability to recruit and retain faculty, students, postdocs, and research staff. The participation of undergraduate students in many areas of research is also limited by the availability of funds to support their research.

Most of the research conducted at UBC depends on the involvement of graduate students. While the *roles* of graduate students vary among research areas, the *quality* of the research that can be accomplished is frequently dependent on the quality of graduate students conducting the research, as well as the support provided to those students to enable their success. Even in areas where graduate students work independently of a research team, the overall level of research improves as the number and quality of students improves, and the quality of the research program is reflected by the both the quality of graduate students attracted to that program and by their success. Thus, to improve research excellence at UBC it is critical to increase the amount of money available to support researchers and graduate students

Proposed Actions

1. *Individual grant facilitation and internal review.*

   One of the more successful initiatives to increase researcher success at UBC over the past decade has been the use of internal review, for health researchers through the Health Research Resource Office (HeRRO), and for institutional CFI applications through the CFI/BCKDF Resource Office. We have recently added two new permanent positions to the VPRI Office to expand the grant facilitation available to researchers outside the domain of health. However, this has been offset by significant cuts to our budget resulting from Michael Smith Foundation budget cuts, which had a serious impact on HeRRO. We must make decisions about resource allocations; to increase the professional staff support for grant facilitation and internal review, we will have to reduce funding for other activities. We also need to take advantage of other sources of support, such as the pool of emeriti faculty, to expand our efforts.

2. *Increase scholarship support and funding packages for graduate students.*

   Recruiting the best graduate students and helping them to succeed will require increased funds for support packages and more significant scholarship funding for foreign graduate students. We will work in cooperation with the Faculty of Graduate Studies in lobbying government to increase support for graduate students, and to increase support from the UBC budget for graduate funding packages.

   Commentary: This overlaps with the Graduate Strategy being developed by Dean Evans.

3. *Increase international funding opportunities.*

   Now that the International Office is within the VPRI portfolio, more focus can be put on increasing funding for international research collaborations. This will be done through more effective grant facilitation and providing better and more timely information to researchers.

4. *Cooperate with the Development Office on working with foundations.*

   Much of the research at UBC is supported by charitable foundations. While this support is well established and understood by health researchers, we could do a better job of connecting researchers with foundations and other potential sources of research funding. This will be achieved in cooperation with the Development Office.

5. *Create a seed fund to support creative productions.*

   In the creative arts, money is needed to mount productions or to complete works. As funding sources are limited, it might be possible to create, perhaps through fundraising, a seed

investment fund to support the creative arts. This would be somewhat different from normal seed funding, as there would be an expectation that in many cases proceeds from performances could replenish the fund.

6.1.3 P&P Action: Improve infrastructure to support leading edge research

While the previous actions dealt with funding for research, there are other forms of support necessary for strong research. These include the systems and practices that are used to administer and regulate research, common facilities and infrastructure for research, space for collaborative and interdisciplinary research, and other forms of support for researchers.

Proposed Actions

1. *Improvement in common equipment for research, and support for that equipment.*

   The CFI Office has had an excellent record of helping groups of researchers obtain support for shared research equipment. This has led to a great improvement in the research equipment available to researchers, but it creates new challenges. To maximize the impact of this infrastructure, it should be made available to as many researchers as possible, and adequate support needs to be provided to maintain and operate this equipment. This can be accomplished by creating an inventory of equipment that is available for common use, and assisting research groups who are responsible for the equipment in finding external users who will use the equipment on a cost recovery basis. Increased support can also be obtained by lobbying governments and other external funders for increased support of indirect costs, which can then be used to support maintenance and operation.

2. *Improved business practice and research information.*

   While necessary, the administrative systems in place for research can sometimes impede the research process by becoming cumbersome or bureaucratic. Examples can include ethical reviews for research with human subjects or animals, contracts for research partnerships, or agreements for collaborative research. We are finishing a complete overhaul of our core support system, the RISe system, and are helping to develop a harmonized system for ethics approvals for clinical research in BC. There is still work to be done to ensure that RISe meets the needs of our researchers, and that the processes of ethics approvals and contracts are streamlined. We also need to create a more efficient system for negotiating research and service contracts, through the use of standard agreements, and clarification of liability and indemnification issues.

3. *Create fellowships to support leading researchers and newer researchers.*

   One of the most important issues in many areas of research is the need for time to conduct research. This is especially true for researchers early in their careers, when they are trying to establish a reputation. For all researchers, a competitive fellowship program should be investigated to add to the supply of internal research fellowships.

4. *Support the creation of new structures to support research.*

   There are some proposals for the creation of new structures and programs that could support research excellence. Two that have been discussed recently are an Institute for Humanities and a School of Public Policy. While UBC may not proceed with either of these, these and other similar structures should be investigated. Humanities scholars often work in isolation, which can disadvantage them compared with other disciplines. An Institute of the Humanities, which

would include an interdisciplinary graduate program, could strengthen humanities research and graduate studies.

> *Commentary:* It would be useful to investigate programs like this at other leading universities (Toronto, Hebrew University, etc.) to see if such a model would be useful at UBC.

A School of Public Policy could provide for an increased understanding of how university research, particularly scientific research, could be used to inform and change public policy. A proposal is being developed for such a school at UBC and should be seriously considered.

5. *Expand opportunities for interdisciplinary dialogue*

   There are not enough locations and opportunities on campus for researchers to meet informally to develop an understanding of research outside of their own discipline. The old Faculty Club is often used as an example of a place where such discussions could be held. Currently, there are some places and opportunities provided by the Peter Wall Institute and the graduate colleges. Expanding the role of these places, promoting better synergy between them, and establishing new spaces for dialogue would foster a better environment for interdisciplinary research on campus.

6.1.4 P&P Action: Expand recruitment of top ranked graduate students and postdoctoral fellows

As already discussed, research excellence at a university relies on recruiting the best researchers and ensuring their success. Many of these researchers at UBC are research trainees: graduate students and postdoctoral fellows. UBC must work to maximize the success of these researchers, in addition to recruiting the best people. This emphasis on research trainees does not detract from the important role played by professional research staff, but a university has a special obligation to those being trained as researchers.

Proposed Actions

1. *Improve international recruitment of students.*

   There is currently no developed strategy for recruitment of international graduate students. As an internationally important university, we should expect to attract the very best students from around the world into our graduate programs. This not only improves the overall quality of those programs, and allows for expansion of our graduate enrollment, it also creates future international linkages through our alumni when they leave UBC. This international network has greatly benefitted other great universities in their efforts to internationalize their research effort.

   > *Commentary:* Again, this overlaps with the pending Graduate Strategy.

2. *Lobby for creation of improved fellowships for graduate students and postdocs.*

   This is discussed in the previous section and will be an important component for achieving the goal of recruiting internationally, where there are currently fewer scholarship opportunities.

3. *Work with MITACS to improve opportunities for graduate internships, including expansion of international internship, and to improve professional training.*

   We can strengthen graduate education by creating opportunities for graduate students to have international and/or off-campus experience in industry, government, or civil society organizations. Students and postdocs also benefit from training that is not specific to their discipline (sometimes called "soft skills"). As most of our graduates will not go on to become university professors, it is important to provide them with training outside their research areas.

4. *Create new graduate residences similar to Green College and St. John's College*

   The graduate residences at UBC support our graduate students in two important ways: they provide badly needed housing – especially important for international students – and they provide a place for informal discussions among students from different disciplines, which improves their learning environment. We can only accommodate a small fraction of our graduate students in Green College and St. John's College, and there seems to be a strong demand for more residences like them. One possibility for a graduate residence that has been proposed is a "sustainability house" on south campus, and this could be an exciting new college.

6.2 Place and Promise Goal: Be a world leader in knowledge exchange and mobilization

It is given that one of the most important determinants of excellence in research is the opinion of peers, who are generally researchers and academics at universities around the world. Without diminishing the need to have our research recognized by other researchers, it is often true that for research to have its maximum impact we must connect and collaborate with non-university communities. Some obvious examples are in health research, commercialization and public policy development. A potential breakthrough in treatment of disease that is discovered in a laboratory needs to be translated into clinical practice if it is to have an impact on health care.

Although universities can facilitate commercialization of research results, they are not commercial enterprises, which means partnerships are necessary with the private sector for commercialization of university discoveries. While university research can and should have an impact on public policy, we must partner with external agencies to see our research translated into policy practice. Health research is often performed in partnership with advocacy groups and affected populations.

6.2.1 P&P Action: Increase emphasis on engaging external communities in research at UBC

Commentary: It is also important to move beyond a traditional model of knowledge translation, where the role of the university is to generate knowledge and then bring enlightenment to those outside the university gates. This notion of one-way knowledge exchange is dated, and in some cases reflective of a colonial mentality (for example the historical practice of research "on" Aboriginal communities). What needs to be promoted is the concept of partnerships, where university researchers learn from external communities and carry out their research in partnership with them. Of course, this is not necessary or even desirable for all university research, but many types of research can be improved by increased partnership.

Proposed Actions

1. *Facilitate the development of partnerships necessary to make "campus as living lab" successful.*

   These partnerships are not restricted to ones with external companies for technology development, although those are an important component to "campus as living lab." On-campus partnerships and work with external organizations and governments are also an important feature of our sustainability strategy, as it is important to not only change the way UBC behaves but to also implement successful strategies in the broader community.

2. *Expand university research capacity by fostering and managing partnerships and collaborations with non-UBC entities.*

   The Pacific Institute for Mathematical Sciences, MITACS, and the Banff International Research Station are excellent examples of research organizations that have played an important role for UBC researchers, and which have greatly improved our research capacity. The Clean Energy Research Centre has a longstanding, mutually beneficial partnership with the NRC Institute for Fuel Cell Innovation, and UBC has strong and longstanding ties with the TRIUMF national laboratory on our south campus. There are many opportunities for similar partnerships with other institutions and organizations that should be developed.

3. *Develop and expand research carried out in partnership with Aboriginal communities.*

   This is a very important priority for UBC, and forms a part of the Aboriginal Strategy. The VPRI portfolio needs to work with the Senior Advisor to the President on Aboriginal Affairs and the Standing Committee for the Aboriginal Strategic Plan to support the research goals of the Aboriginal Strategy.

4. *Develop a strategy to promote and support community-based research.*

   There are specific issues and challenges involved in conducting community-based research, particularly when researchers are working with vulnerable or marginalized populations. This type of community engagement builds on UBC's strength in research with vulnerable populations (e.g., in HIV/AIDS, mental health and addictions, etc.) and our focus on community service learning. The VPRI will work with the Learning Exchange and the VP External, Legal, and Community to develop a plan for supporting and promoting community-based research.

5. *Develop an integrated industry engagement strategy for UBC.*

   There are several different levels on industrial engagement, from partnership for commercialization or research, through to provision of technical services such as instrumental analysis or animal care. In all cases, we need to develop a mutually beneficial strategy to facilitate this engagement at all levels, and to use this engagement to improve our research efforts. A key part of this will be the creation of a high-level external advisory committee who will help to define the engagement strategy.

6. *Work to expand knowledge and appreciation of the importance of UBC research.*

   Continued public and political support for all aspects of our research effort rely on a better understanding and appreciation of our research. This promotion of our research must be across the full range of activity, and cannot rely on simply highlighting research with clear applications. This will be done in cooperation with the VP External, Legal, and Community.

Commentary: Clearly, a key part of this effort will be directed at politicians, public servants, and important opinion leaders, along with local, national and international communities.

6.2.2 P&P Action: Expand the multiplicity of knowledge exchange channels, such as global access licensing

Proposed Actions

1. *Create and/or identify and implement alternative Intellectual Property (IP) mechanisms for data, research tools, software and other research inventions.*

   There is a great deal of discussion locally and across the country about best practices for management of university-generated IP. UBC needs to be fully engaged in this discussion and must work to develop innovative ways of treating IP to maximize commercialization success and knowledge exchange while protecting the rights of UBC researchers.

2. *Build relationships with Centres of Excellence for Commercialization and Research and Business-Led Networks of Centres of Excellence to develop and advance UBC inventions.*

   These relatively new programs of funding from the Federal Tri-councils (NSERC, SSHRC, and CIHR) have been very successfully exploited by UBC researchers, such that we have several CECRs based at UBC, of which the Centre for Drug Research and Development is a prominent example. These centres and networks provide new channels for knowledge exchange and research translation.

3. *Take an international leadership role in the development of Global Access practices and apply these practices to UBC inventions.*

   UBC has taken a leadership role in adopting Global Access licensing practices, which make technologies available at cost to poor countries. We now need to develop effective means of identifying and helping to develop these technologies in partnership with the global south.

6.2.3 P&P Action: Develop a campus strategy for making UBC research accessible in digital repositories, especially open-access repositories

Proposed Action

1. *Work to develop a central scholarly publications and data repository to ensure results of UBC research are freely accessible and meet the NIH and CIHR requirements regarding "open access."*

   This is a partnership with UBC Library that helps to promote more openness in our research. A more detailed plan of action will be developed in cooperation with the University Librarian.

7.0 Summary

This section will be written once the previous sections are finalized.