



Future of IT in the Faculty of Medicine – Findings and Recommendations

DECEMBER 3, 2015

“Making Form Follow Function”

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1. EXECUTIVE SUMMARY

The Faculty of Medicine (FoM) has a long-standing and growing dependency on information technology (IT) services to support its mandate of excellence, innovation, and scholarship in health education, research, and patient care. There has, however, been recognition for some time that IT services in the FoM are less than optimal. As a consequence, the “Future of IT in the Faculty of Medicine” initiative was undertaken to put mechanisms in place to ensure that IT investments are aligned with and support the mission of the FoM.

Throughout the spring of 2015, the Future of IT project team reached out to units¹ across the FoM to understand their technology needs and challenges, analyzed existing IT financial and governance information, and investigated IT industry best practices.

Key issues that were identified included inconsistent or inadequate delivery of IT services to FoM groups, a lack of focus on research computing, lack of visibility into IT expenditures, inconsistent and uncoordinated IT governance and insufficient engagement of FoM individuals and groups in IT decision-making.

To address these issues, the Future of IT in the FoM Steering Committee recommends developing a “federated” model for IT in the FoM. The federated model aims to balance centralized and decentralized IT decision-making, reflecting the need to have some centralized services to enable efficient and effective use of resources, while also allowing a high level of autonomy for units.

The federated model is supported by the following seven recommendations. If implemented fully, these recommendations would lead to improved IT service delivery, governance, financial management, and engagement.

- **Recommendation 1:** Align the provision of and access to IT services to meet the Faculty’s needs.
- **Recommendation 2:** Develop and implement an IT service delivery model to directly support FoM research.
- **Recommendation 3:** Create a responsive, transparent, and accountable governance structure to manage IT within the Faculty that balances central and autonomous decision-making and has linkages within the University.
- **Recommendation 4:** Evolve the governance structure and create operational forums to best support partnerships external to the University such as Health Authorities and the Ministry of Health.
- **Recommendation 5:** Establish standard service costs and financial tracking and reporting consistent with best practices that will support benchmarking and continuous improvement.
- **Recommendation 6:** Ensure that IT investments align with the Faculty’s vision, mission, and strategic commitments.
- **Recommendation 7:** Develop a framework for engagement with individuals and groups.

The first step in implementing this model is the establishment of a governance structure. While governance is under development, Faculty leadership should provide both MedIT and UBC IT with the mandate of addressing IT service issues that are currently within their control.

¹ Throughout this document, unit refers to any organizational group within the FoM including departments, schools, centres, institutes, programs and administrative groups.

2. INTRODUCTION, PURPOSE AND BACKGROUND

The Faculty of Medicine (FoM) has a long-standing and growing dependency on information technology (IT) services to support its mandate of excellence, innovation, and scholarship in health education, research, and patient care. Technology requirements are becoming more complex as we see increasing collaboration between universities, Health Authorities and the government for education, research and patient care. There has, however, been recognition for some time that IT services in the FoM are less than optimal, a recognition that arose from the perspectives of academic units and that led to the formation of two working and focus groups in an attempt to address the issue. The 2013 Review of the Dean's Office also found a lack of alignment between the FoM's vision and the current IT operating model.

As a consequence, the "Future of IT in the Faculty of Medicine" initiative was undertaken to put mechanisms in place to ensure that IT investments are aligned with and support the mission of the FoM. The initiative focused on a comprehensive review of IT as a whole at the FoM and did not focus solely on MedIT, the FoM's centralized IT service provider. Work included the development of recommendations to address the elements outlined below, recognizing that IT in the FoM depends upon a partnership with Health Authorities, supports a broad spectrum of health professions, and is delivered by multiple service providers.

The following elements were included in the scope of the Future of IT in the Faculty of Medicine initiative:

- **IT Strategy and Governance:** Developing IT governance models
- **Service Scope, Delivery and Funding:** Clarifying the scope of services required by FoM departments, schools, centres, institutes, and programs and the costs associated with their delivery, and determining the technical and organizational structure needed to deliver the required services
- **Client Requirements and Engagement:** Determining client IT requirements and ongoing client engagement needs
- **IT Continuous Improvement:** Establishing mechanisms for feedback and continuous improvement of IT services

The Future of IT in the Faculty of Medicine initiative ran from October 2014 to August 2015, and was overseen by a Steering Committee composed of representatives from FoM departments, schools and centres, UBC IT, and the Provincial Health Services Authority. See Appendix A for a list of Steering Committee members.

The initiative had five phases:

1. Planning
2. Information gathering
3. Evaluation and analysis
4. Recommendation and approval
5. Roadmap and transition planning

PURPOSE

The purpose of this report is to present the committee's findings regarding IT challenges, needs, and gaps in the FoM, and recommendations to address these issues. The report includes background information about the FoM, describes the approach taken to collect and analyze information about IT, provides an overview of the findings from interviews with stakeholders, and outlines recommendations to address the findings.

The document was reviewed and approved by the Future of IT Steering Committee, the Committee of Department Heads and School Directors, and the Faculty Executive.

BACKGROUND

The University of British Columbia is home to the only Faculty of Medicine in British Columbia. The Faculty provides innovative educational and research programs in the areas of health and life sciences through integrated province-wide delivery. Founded in 1950 with a graduating class of 60 students, the FoM now has more than 3,400 learners² at the undergraduate, graduate and postgraduate levels and provides teaching to several thousand additional students from other disciplines at UBC.

The FoM's mandate is to contribute to the health of individuals and communities locally, nationally, and internationally by fostering excellence, innovation and scholarship in education, research, and patient care. The Faculty has made five commitments to fulfill this mandate:

1. Transformative learning
2. Research innovation and excellence
3. Health care innovation and excellence
4. Investment in people and partnerships
5. Accountability and economic sustainability³

LEARNING

The FoM has more than doubled its enrolment since 2004 and simultaneously distributed its clinical training and education across the province⁴. The expansion and distribution of the UBC Faculty of Medicine MD Undergraduate Program was carried out in partnership with the provincial government, the University of Victoria, the University Northern British Columbia, and all six Health Authorities. In addition to education at academic university campuses, students receive training at numerous clinical facilities throughout the province, which provides the students them with experience in urban, regional, community and remote settings. Academic university campuses are located in Victoria, Prince George, Kelowna, and Vancouver. Clinical sites are located throughout BC and include both hospitals (Clinical Academic Campuses and Affiliated Regional Centres) and practitioner offices (Community Education Facilities). Health Professional programs are also increasingly being distributed to additional locations throughout BC, such as the recent establishment of the Vancouver Island Cohort of Midwifery and the Northern Rural Physical Therapy Cohort.

RESEARCH

Research excellence is a key part of the Faculty vision and mission. The Faculty oversees more than \$300 million in research activities each year, which represents more than 50% of UBC's overall research funding. The FoM

² Learners include undergraduate students, graduate students, postgraduate trainees (residents and fellows), and post-doctoral research fellows, enrolled full-time or part-time in programs offered by the FoM or attending on a temporary basis as part of an elective or other program.

³ www.med.ubc.ca/about/our-strategic-direction

⁴ www.mdprogram.med.ubc.ca

participates in research across the full continuum, from basic science to applied science to knowledge implementation, with a focus on cancer, neuroscience, mental health, and heart and lung disease.

Most Faculty research is conducted under the auspices of six institutes and fifteen centres that are part of UBC or affiliated with it, and in collaboration with our health partners.⁵ Most of these institutes and centres are located in Health Authority-managed spaces off the UBC Point Grey campus.

HEALTH CARE INNOVATION AND EXCELLENCE

The FoM is committed to building and maintaining a health care system that strives for the best possible health for British Columbians, an outcome that will have positive impacts on communities in Canada and elsewhere. Achieving this goal requires partnerships with Health Authorities, other educational institutions, and health care providers, to enable clinical excellence and to bring innovations to practice and the health system overall. Notably, the vast majority of faculty members in the FoM and their activities occur in settings outside the University Academic Campus and largely in sites under the auspices of Health Authorities.

IT is an important enabler of the Faculty's commitments to learning, research, and health care innovation. In addition to underpinning standard day-to-day operations, technology plays a critical role in the FoM by allowing the Faculty's functions to operate in a geographically distributed environment and by supporting accreditation requirements for medical school and residency programs. The geographic distribution, clinical context, size, and complexity of the FoM have substantial implications for the delivery of IT to FoM educators, researchers, learners, and administrators with a diverse spectrum of needs.

CURRENT IT SERVICE DELIVERY

IT for the FoM is currently delivered by a number of different groups, including:

- **UBC IT:** Central IT group that provides some services across the FoM and to specific units
- **Medicine IT (MedIT):** Central group within the FoM Dean's Office that provides IT services to the Dean's Office, educational programs, and some FoM departments and centres upon request
- **Health Authorities IT:** Groups within the Health Authorities that provide support to many researchers, learners, and staff located in hospital sites
- **Department, school, centre, or institute staff:** Individuals employed by specific FoM departments, schools, centres, or institutes to provide services to their group
- **Individual researcher IT staff:** Individuals employed by specific researchers to provide both specialized IT expertise and/or general IT services to their research group

For an overview of the current IT organizational structure, see Appendix C.

⁵ www.med.ubc.ca/research/centres-institutes

PREVIOUS IT ALIGNMENT EFFORTS

There have been a number of efforts over the past three years to improve alignment between the delivery of IT services and the Faculty's mission. The current initiative builds on the previous work and incorporates a number of key elements from these efforts.

The previous work includes:

- **Information Technology Needs of UBC Departments in the Faculty of Medicine from the Perspective of Pathology and Laboratory Medicine:** This report, completed by the Department of Pathology and Laboratory Medicine in 2012, outlined IT needs, challenges, and proposed solutions. It was circulated broadly to FoM departmental leadership, who generally agreed with the conclusions and recommendations in the document. (The responses are published in the **Summary of Feedback Received About IT Services in the Faculty of Medicine at UBC.**) The findings of the 2012 report are similar to the findings presented in this document and reinforce the fact that these IT issues represent long-standing problems that are now urgent.
- **IT Optimization Committee:** This working committee was tasked with identifying challenges with IT service delivery in the FoM. From 2012 to 2013, the Committee developed guiding and operating principles for technology support in the FoM that were reviewed and approved by the Committee of Department Heads and Schools Directors. These principles have helped to inform the recommendations from this initiative.
- **Faculty of Medicine IT Service Strategy Approach:** This document was developed to draw together conversations regarding IT service improvement, in the context of next steps from the 2013 Dean's Office Review. The document outlines a number of detailed questions that needed to be answered to move the Faculty's IT experience forward. These questions formed the starting point for the Future of IT in the Faculty of Medicine initiative.

3. APPROACH

This section outlines the approach that was taken by the Future of IT in the FoM project team to collect information about the current state of IT in the FoM. Information came from a number of different sources, including:

- Direct engagement with stakeholders
- Financial benchmarking
- Industry benchmarking

DIRECT ENGAGEMENT WITH STAKEHOLDERS⁶

It was critical to consult with FoM stakeholders to understand the future directions and needs of individuals, groups, and programs. An engagement approach was chosen that allowed input from a broad, representative group from the FoM. People were engaged in four ways:

- **Interviews:** Small group interviews organized by unit⁷. The team tried to have interviews with members of all departments, schools, centres and institutes affiliated with the FoM.
- **Group sessions:** Group sessions organized by location. Invitations were distributed via Department Heads and School, Centre, and Institute Directors. Focus sessions were also held for learners.
- **Survey:** Anonymous online survey, distributed as widely as possible across the FoM.
- **Standing committee presentations:** Presentations given at a number of FoM standing committee meetings. Committee members often provided input or feedback on the initiative.

Table 1 below shows the number of sessions and participants/responses for each type of engagement forum, as of May 20⁸, 2015.

Table 1: Number of Sessions and Participants for Future of IT in FoM Engagement Forums

Engagement Forum	# of Sessions	# of Participants
Interviews	38	95
Group sessions	12	93
Survey	n/a	136
Standing committee presentations	19	n/a

See Appendix B for a list of groups involved in the interviews and an overview of the group sessions.

Common feedback began emerging after a small number of interviews and group sessions. This feedback was categorized and organized into themes, which were then tracked to understand how many stakeholder groups raised the same issue.

⁶ Stakeholder refers to any group or individual that uses IT and may also be referred to as a User or Client.

⁷ Throughout this document, unit refers to any organizational group within the FoM including departments, schools, centres, institutes, and administrative groups.

⁸ Engagement continued beyond May 20. Groups that were interviewed after this date provided validation of findings but are not included in this table. See Appendix B for more information.

Once developed, themes were reviewed and validated in interviews, group sessions, and standing committee meetings. Survey results were compared to the themes and found to be consistent.

FINANCIAL BENCHMARKING

The University's Financial Management System (FMS) and Human Resources Management System (HRMS) were used as sources of data, particularly for an analysis of the FoM's IT expenditures. The FMS provided information about IT expenditures, including their distribution between the Dean's Office and departments, schools, centres, and institutes. The HRMS was used to identify staff classified in the "IT Systems & Technology" job family, many of whom provide IT services and support⁹. Costs for those roles were included in the financial analysis. Neither the FMS nor the HRMS include expenditures made by the Health Authorities or other partners for the benefit of the FoM.

INDUSTRY BENCHMARKING

Two sources provided information about industry benchmarking:

- **American Association of Medical Colleges (AAMC):** Information came from their IT benchmark database of 126 medical schools in the United States and Canada. The 17 Canadian schools included in their system were used as the primary source of comparison against the FoM on a number of factors. Although helpful for broad comparisons, it was difficult to draw strong conclusions from the AAMC information because the data are self-reported and definitions are subject to interpretation. Differences between the FoM and other schools in the way they deliver education were also taken into account. For example, UBC has a province-wide mandate, whereas most other schools do not.
- **Gartner¹⁰:** This highly regarded IT analyst firm provided information about IT industry best practices. In particular, Gartner resources were used to assess common practices regarding how IT services are funded, governed, and managed for continuous improvement. Note that Gartner information is not specific to medical schools or higher education.

4. FINDINGS

This section outlines the findings from the team's information gathering and analysis. Findings are expressed in terms of IT needs or problems and fall into seven broad categories:

- **Fundamental service requirements:** IT services that are essential to enable learners, educators, researchers, and administrators to carry out their day-to-day activities
- **Integration and collaboration with Health Authorities:** IT challenges that arise from the fact that much FoM education and research takes place in hospital sites and/or relies on systems, infrastructure, and health information provided by the Health Authorities
- **Governance:** Issues regarding how IT decisions are made in the FoM, who is responsible for making those decisions, and how decision-making groups are connected to each other

⁹ Some personnel classified in this job family are likely employed to work on specific research projects and are compensated through research grant funding.

¹⁰ www.gartner.com

- **Organizational culture:** Aspects of the FoM organizational culture that have an impact on IT service delivery
- **Finance:** Challenges with the current IT funding model and related financial reporting
- **Service enablement and sustainment:** Capital and resource needs to support the development and sustainment of programs or initiatives within units
- **User engagement:** Gaps in communication and engagement of FoM stakeholders regarding existing and new IT services

Figure 1 below shows the percentage of interviews and group sessions in which these categories were identified or confirmed by participants as challenges, needs, or gaps. Finance has not been included in the graph as the finance findings came primarily from benchmarking and not from stakeholder sessions.

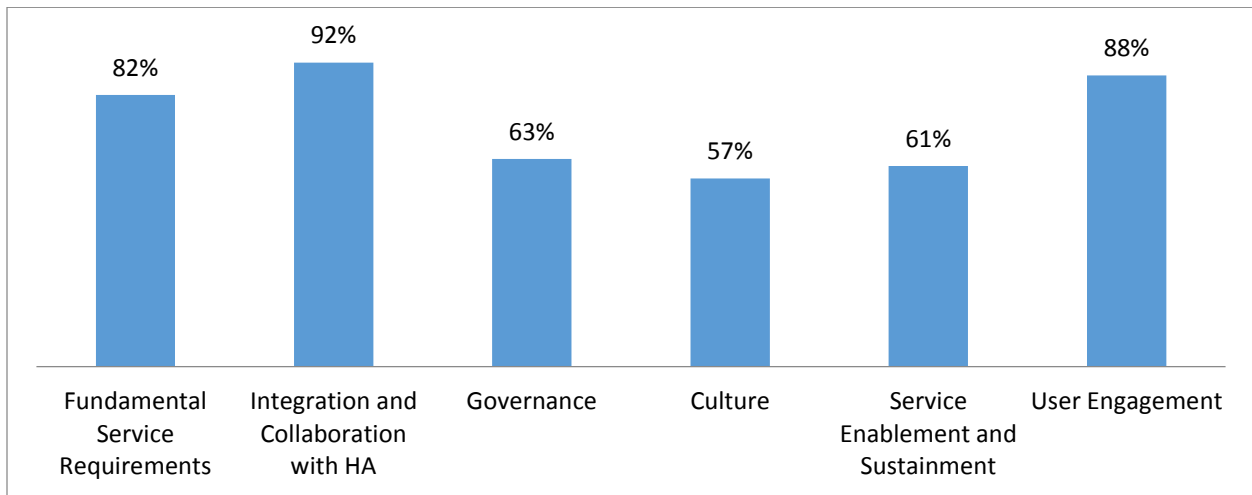


Figure 1: Percentage of Sessions in which the Categories of IT Needs, Challenges, and Gaps were Identified or Confirmed

Further breakdowns of the above categories, where available, are provided in the sections below.

In addition to IT needs or problems, many stakeholders identified aspects of IT delivery in the FoM that have been working well. The purpose of the initiative is to improve IT service delivery and, as a result, the focus of the findings below is IT needs, challenges, or gaps. IT strengths are summarized briefly in Section 4.8.

FUNDAMENTAL SERVICE REQUIREMENTS

Much of the feedback received from stakeholders during interviews and group sessions focused on gaps in fundamental IT services. Fundamental services are those required by most people in the Faculty regardless of role, and that help support basic work activities (e.g., wireless internet, basic data storage, etc.). Issues regarding one or more of these services were mentioned in 82% of interviews and group sessions.

The fundamental services that were most frequently mentioned as having gaps are outlined in Figure 2, along with the percentage of interviews or group sessions in which they were identified or confirmed.

Note that advanced research computing is included in the chart. Although advanced research computing needs are specific to particular types of research and not shared across the Faculty, they are critically important for supporting research in certain centres and so have been included here as a fundamental service requirement. The

percentage below for advanced research computing represents the percentage of research centres and institutes that identified this as a challenge, need, or gap¹¹.

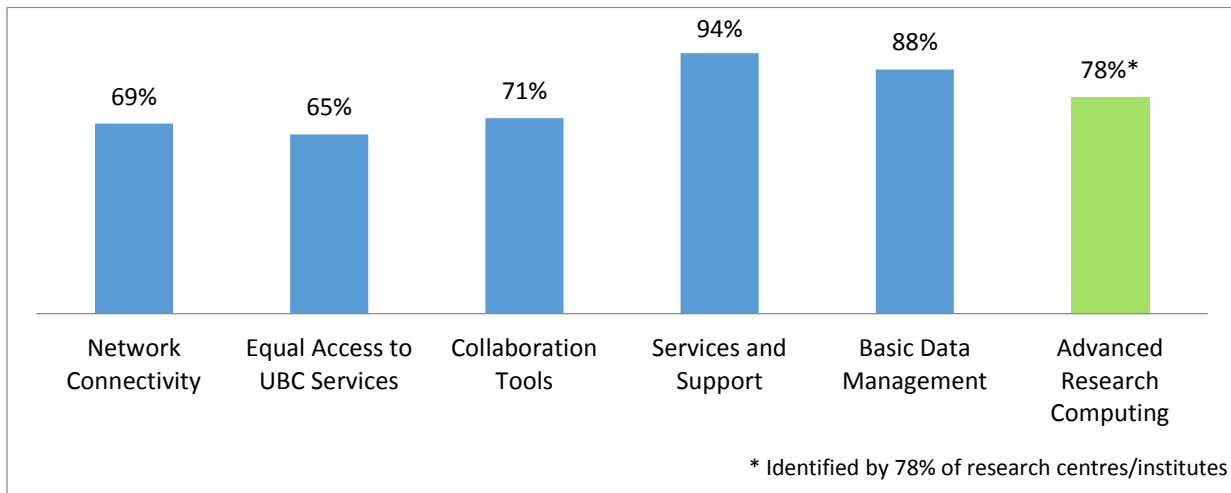


Figure 2: Percentage of Sessions in which Fundamental IT Service Challenges were Identified or Confirmed

NETWORK CONNECTIVITY

Problems with network connectivity were identified in 69% of interviews and group sessions. Two specific needs were identified:

WIRELESS INTERNET AVAILABILITY AND STABLE ACCESS IN HOSPITAL SITES

- The wireless network is good in some locations but not all. Problems with inadequate wireless access are particularly prevalent in hospital sites. Some faculty and staff are regularly not able to access University resources and services because they do not have adequate wireless internet connectivity.
- Staff in some units have resorted to walking to areas or buildings that have better wireless connectivity, which is not an effective use of time.
- Learners who study in locations without adequate wireless access must rely on their own mobile devices to access study material when UBC wireless is not available.

ADEQUATE BANDWIDTH TO SUPPORT DATA TRANSFERS

- Researchers, educators and administrators need to transfer data to their colleagues at various distributed sites within and outside of UBC. In some locations, bandwidth issues make data transfer between sites challenging.
- In some areas, particularly research, people use methods of data transfer that present security risks and are inefficient to the point of affecting work productivity. One example is people transferring information to insecure external drives and then physically taking the drive to the person with whom they are sharing information.

¹¹ If calculated as part of the whole, advanced research computing needs were identified or confirmed in 49% of the sessions.

Findings: The state of network services in many locations where FoM faculty, learners, and staff are located is inadequate. Network services underpin many other technological services. As a result, inadequate network services drastically affect the productivity of FoM researchers and educators.

EQUAL ACCESS TO UBC SERVICES

Sixty-five per cent of respondents identified access to UBC services as a challenge. There is a need to have equal access to services for faculty (including clinical faculty), staff, and learners at all locations:

- Respondents located in Health Authority facilities often encounter challenges accessing IT services that were primarily designed for those who work out of the Point Grey campus. An example of this is UBC software licensing agreements which are frequently limited to users at Point Grey and often do not accommodate researchers located at hospital sites. As a result, researchers are often forced to pay more for research analytical licensing from the Health Authorities to be able to conduct UBC research.
- Respondents in the Health Professions programs (e.g., Occupational Therapy, Physical Therapy) would like to receive the same resource support as those in the MD Undergraduate program. For example, individuals in these programs would like to have the same access to FoM facilities (such as videoconferencing facilities).

Findings: Access to support and associated services is highly variable across locations where FoM faculty, staff, and learners work. Many services have not been designed to work at hospital sites. Some FoM programs enjoy a greater degree of access to IT services.

COLLABORATION TOOLS

Due to the Faculty's distributed nature, FoM members (including clinical faculty members, researchers, learners, and staff) often work at multiple locations. Seventy-one per cent of respondents identified the need for secure, accessible tools to enable real-time collaboration between locations. These tools include facilities-based videoconferencing, desktop videoconferencing and web-conferencing applications, and tools that allow sharing of various types of data.

- Most of the existing collaboration tools have been built to suit requirements for distributed MD education. Many respondents outside of the MD program would like to use videoconferencing to enhance community engagement and allow better collaboration with their colleagues.
- Some respondents (e.g., research centres, clinical programs) would like to have their seminars delivered via web conferencing to allow researchers and graduate students access without the need for travel. Some respondents also expressed the need to access recordings of these seminars.

Findings: Adequate tools appear to be in place to support MD Education. FoM's Health Professions programs and researchers are lacking the necessary collaboration tools to support their work.

SERVICES AND SUPPORT

Issues related to IT support or the ways that IT services are delivered were mentioned in 94% of interviews and group sessions.

ADEQUATE DEVICE¹² (PLATFORM-INDEPENDENT) SUPPORT SERVICE FOR ALL DEPARTMENTS AND CENTRES

Many hospital-based departments and centres have aging or failing desktop hardware and inadequate device support. The aging computers (many ranging from five to eight years old) cause frustration and reduce productivity.

- It can take up to six months for Health Shared Services BC (HSSBC) to fulfill a request to renew or replace hardware. HSSBC's priority is supporting clinical delivery, not research or education. UBC's desktop support services have difficulty stretching to support hospital-based users.
- Departments and centres require support for various hardware and operating system platforms (Windows, Mac, iOS, Android) for desktop as well as mobile devices.

Findings: Hospital-based departments are caught in a gap between UBC and Health Authority IT Service providers. This gap in service support results in a definite loss of productivity. Several hospital-based departments reported that the issue had reached a crisis state.

SERVICE DELIVERY ATTRIBUTES

Stakeholders identified a number of challenges related to the delivery of IT service in the Faculty, including:

- **Single point of contact ('one-stop shop')**: Respondents expressed challenges in navigating the different IT support providers (such as UBC IT, MedIT, and Health Authority IT). Users would like to see one IT unit act as a central hub to triage all IT requests.
- **Easy access to information about services and IT support**: Faculty and staff expressed the concern that it is difficult and time-consuming to locate IT support, services, and cost-related information through websites. Easy access to information about services and IT support is required.
- **Service consistency**: Consistency is essential to quality service delivery. Some staff indicated that they receive different levels of support from different individuals within one support unit.
- **Consistent response times for requests**: Respondents expressed the need for consistent response times for requests. In general, departments, schools, and centres gave MedIT positive feedback on their responsiveness. Getting responses from the Health Authorities has been a challenge for the hospital-based departments and centres.
- **Training support**: Users felt they were not provided with adequate training or information when new tools were launched. There is also a need for general IT training or self-paced IT training for staff who would like to enhance their IT skills.
- **IT services consultation**: Units would like to have IT consultation services available for times when they have technological needs but do not have resources available within their units. Consultation would help them choose IT solutions that will meet their needs and find out where to acquire these solutions.

¹² Device is used in this document as a generic term for any sort of computer that is used to access IT services. It may be a desktop computer, laptop, or mobile device such as a tablet computer or smart phone.

- **Change management:** Respondents felt that inadequate focus and attention were paid to helping people adapt when technological services were substantially changed. The changes often had an adverse impact on a department's productivity.

Findings: IT services offered to the FoM community are often inconsistently delivered, which results in a myriad of problems, including loss of productivity, erosion of trust in IT service providers, and overall frustration within the user community.

BASIC DATA MANAGEMENT

Almost all users at the FoM need basic data management tools in order to access and store documents, back up files, and share information with team members. Basic data management needs or issues were identified in 88% of interviews and group sessions. Feedback fell into three categories:

PLATFORMS FOR REMOTE AND SECURE DATA STORAGE, ACCESS

- Units expressed the need for a centralized, secure file-hosting service. Current service offerings are inconsistent and do not adequately support FoM's requirement for distributed access. The use of insecure tools such as Dropbox is widespread.

DATA CAPTURE AND ANALYSIS

- Researchers need a standard approach to data management, including the capture of data and database creation. Various one-off implementations of data tools have resulted in inconsistent data-capture methods and isolated databases, both of which make data harder to share.
- There is a need for a common tool that will allow for storage, sharing and analysis of data. Currently, UBC does not provide a viable secure solution for researchers, educators, and clinicians to create and share information. Without a viable solution in place, many individuals have been forced to find alternative solutions which potentially put sensitive personal information at risk.

DATA BACKUP, ARCHIVAL, AND RETENTION

- Research centres have identified the need for secure, efficient and longitudinal data backup and archival services. Data is currently vulnerable to loss due to the lack of secure environments for storage.

Findings: The FoM does not have a comprehensive strategy for basic data management. FoM constituents are forced to adopt piecemeal approaches that compromise security, efficiency and end results, and pose significant risks to the university.

ADVANCED RESEARCH COMPUTING

Advanced research computing needs are specific to particular types of research and are not shared across the Faculty. Seventy-eight per cent of research centres or institutes interviewed identified advanced research computing needs, including:

HIGH-PERFORMANCE COMPUTING AND BIG DATA/DATA SCIENCE

- Some FoM research centres need high-performance computing to be able to store and analyze large data sets. Personnel with specific expertise in these systems are also required to provide system support and assistance with data management strategies.

INTEGRATED DATA AND SYSTEMS

- Some centres need to access research information that is housed within other entities (research centres, government, Population Data BC, etc.). Research across these centres is often interconnected and interdependent. Since each centre has its own repositories or databases managed by a Health Authority, it is challenging for centres to share information.

Findings: Many FoM researchers do not have adequate computing power to conduct their research. Lack of a strategy for data management and curation across centres limits access to important research information and hampers productivity.

INTEGRATION AND COLLABORATION WITH HEALTH AUTHORITIES

Departments, schools, centres, and institutes face a number of challenges that arise from the lack of integration between UBC and the Health Authorities. Those that operate in Health Authority spaces have difficulty accessing both UBC and Health Authority systems, and groups that rely on health and population data for research are challenged to gain access to the data they need. Concerns about the integration between UBC and the Health Authorities were raised in 92% of interviews and group sessions.

HEALTH AND POPULATION RESEARCH DATA

Feedback related to accessing data for research included:

- The current process for gaining access to data is complicated and extremely time-consuming. For example, it is difficult to determine who to contact to gain data access, which delays research. Many of the researchers who have been successful in gaining required data indicated that they relied on personal relationships to navigate the system.
- Privacy and security policies and processes need to be integrated across the University and Health Authorities to allow data to be shared more easily.
- Many researchers depend upon access to multiple research databases and registries but their isolated systems do not provide all the information they require.

Findings: The lack of easy access to health and population data is causing delays and hampering productivity for FoM researchers. Ultimately, this limitation potentially interferes with implementation of innovations into practice that would improve patient care and benefit the health system overall.

NETWORK AND RESOURCE ACCESSIBILITY

A number of departments and centres identified issues related to accessing UBC and Health Authority systems from hospital sites:

ACCESS TO BOTH UBC AND HEALTH AUTHORITY RESOURCES

- Some faculty members have multiple professional roles, including UBC-affiliated researcher or educator and Health Authority employee (e.g., salaried clinician or administrator). Having easy access to both University and hospital resources is essential for them to be able to fulfill their multiple roles.
- Similarly, support staff who are employed by the Health Authorities but provide support for UBC programs require access to both sets of resources.

IDENTITY AND ACCESS MANAGEMENT (ONE USER NAME AND PASSWORD)

- Users in hospital sites are required to have separate login credentials (user names and passwords) for University and Health Authority systems.
- Many clinical faculty members teach only for a short period of time each year and easily forget University login credentials between teaching sessions, which is not only an inconvenience but also discourages them from using University systems.
- Clinical faculty and staff who are not UBC employees are not automatically entitled to University login credentials. Although they can be sponsored, the process causes delays and difficulties in accessing University services.

ONE DEVICE TO ACCESS CLINICAL AND ACADEMIC SYSTEMS

- Many faculty and staff members located in hospital spaces are required to use two different computers (e.g., desktops): one computer connected to the clinical environment and the other connected to UBC.
- Clinical systems often have outdated versions of operating systems, browsers, and major applications. This can limit access to UBC systems, which often require newer versions of software.
- These dual and disparate systems affect the work and productivity of individuals and increase IT costs. In order to foster a productive environment, Faculty and staff want to access both systems using only one device.

UBC WIRELESS CONNECTIVITY

- UBC faculty and staff located in hospital-based departments or centres need UBC wireless access in order to access UBC systems, documents, and services.

Findings: UBC and the Health Authorities are working within their respective boundaries when delivering IT services, but the result for FoM users is large gaps in service. These gaps cause significant challenges to people in carrying out their day-to-day activities, and force people to adopt work-arounds.

GOVERNANCE

Governance refers to how decisions in an organization are made and who has the authority to make those decisions. It includes several critical elements such as how the voices of others (e.g., users) are heard, how transparency and openness are assured, and how accountability is rendered. It is typically aligned with the organizational mission and ideally follows accepted principles of good governance.

Findings regarding governance came from stakeholder input, a review of existing IT governance at the University and the FoM, and benchmarking to other Canadian medical faculties. Challenges with IT governance are foundational to many of the issues that were raised by stakeholders, and were identified in 63% of sessions.

Existing IT governance at the University and the FoM consists of a number of groups that generally have an advisory capacity for a certain IT function. Examples within the FoM include the Committee for Administrative Systems and the Technology Enabled Learning Alignment Committee. These groups usually have limited connection to other governance or IT groups at the FoM or University. See Appendix D for more details about existing IT governance.

IT GOVERNANCE IN THE FACULTY IS LIMITED

- IT governance in the Faculty is inconsistent and in many cases is limited to budgetary oversight. As can be seen in the financial analysis, approximately half of the IT expenditures in the Faculty are outside of the Dean's Office and with no overall coordination among groups. Additionally, IT lacks representation at the highest level of academic leadership in the Faculty.

NO IT GOVERNANCE LINKAGES BETWEEN THE DEPARTMENTS AND THE FACULTY

- As is typical of Canadian medical schools, the Faculty has both centralized and decentralized IT functions and also receives some services from the University. To the extent that IT governance is in place, there is little or no linkage or coordination of decision-making between the different groups.

LIMITED IT GOVERNANCE LINKAGE WITH HEALTH AUTHORITIES

- The Faculty is dependent on the Health Authorities for the delivery of Faculty and UBC IT services on Health Authority premises, to deliver Health Authority-provided IT services to Faculty and learners working in hospital environments, and for access to health and population data to support research initiatives. No well-established IT governance bridges these groups. Existing services, including those designed to support the distributed MD program, are exclusively dependent on personal relationships for their development and sustainment. The lack of aligned mandate between the health system and FoM causes significant issues that are felt directly by stakeholders. Several fledgling steps have recently been taken to improve this situation, such as the appointment by UBC of a Deputy Chief Information Officer (CIO) Health, but more formal governance structures need to be developed to address service issues.

NO PRIVACY IT GOVERNANCE

- Researchers in particular require access to health and population information to support their research. This information is in the custody of the Health Authorities and resides on their systems. There are no joint UBC/Health Authority groups in place to set the parameters on access to and use of this information, nor is there a consistent policy or approach on access to this data. Health and population information is key to the success of research initiatives and to achieving the Faculty's vision.

PREFERRED GOVERNANCE ATTRIBUTES

- Many stakeholders expressed the need for improved IT governance. Sixty-five per cent of survey respondents agreed or strongly agreed with the concept of a centralized governance body to oversee IT at the Faculty; only 13% disagreed or strongly disagreed.
- Respondents would like the IT governance structure to be representative and to include members from units.
- Governance roles and responsibilities need to be clearly defined and supported by resources sufficient to enable IT needs to be met.
- Stakeholders also feel that a governance structure should set IT standards but there should be flexibility in how these are applied.

Findings: There is a lack of communication, accountability, and responsibility for IT strategy and investments. IT governance in the faculty is inconsistent and uncoordinated. Stakeholders generally support an IT governance structure but would like to ensure that it provides flexibility in IT decision-making.

ORGANIZATIONAL CULTURE

Organizational culture may be defined as a shared pattern of assumptions that a group has learned in solving problems of external adaptations (e.g., goals, strategies, how things are done) and internal integration (e.g., how people relate to one another, the hierarchy that exists). These shared assumptions have worked well enough to be considered valid and are viewed as the correct way to perceive, think, and feel in relation to these problems¹³. The assumptions in turn influence attitudes and patterns of behavior within the organization.

Respondents in 57% of sessions identified issues related to organizational culture within the FoM that have an impact on IT service delivery. Although many of these issues do not relate directly to IT, they appear to be amplifying challenges with IT service delivery. These issues have led to a situation that can be summarized by the concept of “organizational dissonance,” or an uncomfortable state of tension that arises from the misalignment of key organization elements¹⁴.

¹³ Adapted from Schein, E. (2010) *Organizational Culture and Leadership*.

¹⁴ Latheef, Z.I., & Werner, S. (2013). Organizational Dissonance: Development of a New Construct. *Academy of Management Proceedings*, 1.

Specific issues identified include:

- FoM departments, schools, centres and institutes do not believe that their specific requirements are well understood by the Dean's Office and are unsure whether their requirements can be aligned with other units within the FoM.
- There is little history or culture of collaboration between groups for the purpose of identifying efficiencies.
- Staff in education, research, clinical care, and administration feel they have drivers and priorities that differ significantly from each other and make alignment difficult.
- Geographic and other factors related to distance among respondents were found to be high with a sense of disconnectedness of regions from the "mothership". No formal engagement mechanisms were observed to make regional stakeholders feel part of the FoM. The implication for IT is that distributed sites feel that their IT needs are not always considered and that there are gaps in IT service delivery to regions.
- Engagement and communication between FoM groups is inconsistent, resulting in communication silos. People would like more opportunities and forums for collaborating and communicating.
- There is a perception that decision-making at the FoM can be slow as the result of a hierarchical reporting structure.
- Stakeholders feel that there has been a lack of meaningful engagement of users in IT planning and delivery.

Notably, trust is lacking between many facets of the organization because of these issues and the organizational dissonance that results.

Findings: Although not IT issues per se, the organizational culture issues observed throughout the stakeholder engagement have a significant effect on the FoM. The FoM, having gone through a decade of expansion and distribution, appears to demonstrate the hallmarks of an organization that requires stabilization and the discovery of new ways of conducting business in a highly distributed environment.

There is also a history of lack of meaningful involvement and participation of stakeholders in IT planning. As a result, trust has suffered, and many stakeholders are skeptical about the ability of the Faculty and University's IT service providers to meet requirements. Communication silos and slow decision-making have worsened the situation.

FINANCE

Financial findings come primarily from an analysis of information in the FoM's Financial Management System (FMS) and Human Resources Management System (HRMS), supplemented by information received by stakeholders in interviews.

FUNDING MODEL UNCLEAR AND INCONSISTENT

- There are no consistent standards or models in place for the recovery of costs for IT services. In some cases, costs are covered by administrative overhead at the level of the University, Faculty, or department. In other instances, units are charged back for IT services based on some measure of services consumed (e.g., the number of active email accounts).

- Cost recovery by the Health Authorities for IT services provided by the Health Authorities to the Faculty does not follow a standard model. In some cases, the costs are treated as Health Authority costs with no cost to the Faculty. In other cases, there is a charge to the Faculty but the mechanism is not consistent. This makes planning and certainty regarding Faculty IT costs difficult and may also reduce the service level provided.

FINANCIAL REPORTING DOES NOT SUPPORT MANAGEMENT OF FACULTY PRIORITIES

- The University’s financial system captures information only about IT costs that the FoM pays directly. A number of FoM centres, institutes, and educational programs receive funding from other sources, such as Health Authorities and research grants, which are not included in the University’s FMS. The result is that it is difficult to quantify the full costs of IT across the Faculty.
- The University’s HR system provides information about the number of people employed by UBC who work in IT roles for the FoM. However, it is unclear what sort of support these individuals provide, and for whom. For example, staff who work within MedIT and provide generalized support to the FoM are categorized in the same way as staff who are employed by specific researchers to provide boutique services to only their research group.
- IT costs are tracked using a traditional chart of accounts and are not reported by initiative, priority, or service. Some accounts mix IT costs with other types of fees, such as clinical faculty payments. As a result, it is difficult to understand how much is being spent on specific IT services or initiatives.
- Departments, schools, centres, and institutes account for more than 50% of the annual IT expenditures in the Faculty. As shown in Table 2 below, the estimated IT costs at the FoM are \$31.9 M per year. For the reasons noted above, this estimate is rough and likely understates IT expenditures. Approximately 48% of the known expenditures come from the Dean’s Office, including MedIT. The rest of these IT costs are budgeted for and spent by departments, schools, centres, and institutes. Because the financial management of IT occurs independently in the Dean’s Office, departments, schools, centres and institutes, there is little connection between IT expenditures and overall FoM priorities and no mechanisms to optimize IT services.

Table 2: Estimated FoM IT Expenditures

	Dean’s Office	Departments & Schools	Research Centres & Institutes ¹⁵	Grand Total
Total Estimated IT Expenditures¹⁶	\$15,284,207	\$11,532,668	\$5,012,473	\$31,829,348

¹⁵ All UBC senate-approved and Faculty of Medicine-approved research centres in the FoM were included in the financial analysis; however, a large proportion of expenditures for these groups is not captured in UBC financial systems. As a result, IT costs for these groups are underestimated.

¹⁶ This table includes an estimate of funding for IT personnel not directly employed by UBC where these personnel were identified by stakeholders. However, both the IT personnel costs and other IT costs that do not appear in the University financial system are likely underestimated. See Appendix E for more information about how the estimated IT expenditures were derived.

INABILITY TO MAKE INFORMED DECISIONS ON COSTS AND SERVICE LEVELS

- Since a complete understanding of FoM IT costs is not available and because costs are not allocated to specific IT services, it is not possible to make informed decisions about the appropriate trade-offs between available IT services, service levels, and costs.
- Financial management is closely tied to and impacts the governance of IT in the Faculty. Any future IT governance groups will need reliable financial information in order to provide oversight and management of IT.

Findings: Although the UBC financial system provides a large amount of information, financial analysis of IT services in the FoM is difficult, primarily for the following reasons:

- Cost information by service (actual or standard) is generally not available.
- Funding models are inconsistent and unevenly applied.
- Half of IT spending is outside of the Dean's Office with no predetermined linkage to Faculty priorities.
- Little information is available about IT expenditures that do not flow through UBC's financial system.
- Services provided by Health Authorities are charged inconsistently and not included in overall costs.

Management of the IT expenditures is made more difficult by the lack of effective IT governance and a model that provides clarity and enables an understanding of costs of services based on the required service and service level. The result is that there is no mechanism or ability to ensure that IT expenditures support Faculty priorities.

SERVICE ENABLEMENT AND SUSTAINMENT

Respondents in 61% of interviews and group sessions identified challenges with capital investments, program support, and service costs that impact their ability to develop and sustain FoM programs or initiatives.

CAPITAL INVESTMENTS

Funding for the acquisition and renewal of infrastructure is a common problem:

- Some centres and departments are struggling to find sufficient funding to sustain their IT operations (e.g., maintaining aging data servers). Some units are struggling to pay for new or replacement IT equipment.
- A better understanding of which IT services should be funded by the Faculty and which should be funded by departments or centres is needed.

PROGRAM SUPPORT

Units do not have access to personnel with the skillsets that are required to support programs or initiatives:

- In order to further develop each department's programs, diversified skillsets are required that are usually not available at the department level.
- Departments have expressed the need for expertise in communication, marketing, and change management to help them engage their faculty community.
- IT needs include expertise in online course design, business analysis, application programming, and data management.

SERVICE COSTS

There is a general lack of understanding about what IT services cost and how they are funded. Desired changes include:

- Clarity on what services are funded by the University vs. departments or centres
- Better understanding of the cost of specific services and how the cost is tied to the service-delivery model
- Uniform and consistent availability of services across units and application of a fee-for-service model regardless of unit location

Findings: Current IT capital and resource planning is ad hoc, without a focus on sustainment. Resources, especially expertise, are not equitably distributed. Funding and costs are inconsistent across FoM units.

USER ENGAGEMENT

User engagement refers to the consultation and involvement of users in IT decision-making. Involvement can occur at a number of different levels, including setting IT strategy and priorities, defining IT requirements and selecting new systems, and collecting feedback for continuous improvement of services.

Units overwhelmingly felt that the Faculty and University's IT service providers do not sufficiently consult with FoM users on an ongoing basis. This problem manifests itself in two forms: a lack of awareness about existing IT services and insufficient communication and feedback channels between IT providers and users. These issues were identified in 88% of interviews and group sessions.

SERVICE AWARENESS

Common feedback related to service awareness included:

- Users lack understanding of what IT services are available and how to access them.
- Users lack understanding of who provides what IT services and who they should contact for information and support.
- Users find it hard to know what tools to use when there are multiple service providers for the same or similar services.

COMMUNICATION AND FEEDBACK

Two broad needs were identified related to communication and feedback between users and IT:

COMMUNICATION CHANNELS TO EXCHANGE INFORMATION AND PROVIDE FEEDBACK

- Some departmental IT staff expressed an interest in collaborating with their colleagues on campus or other departments to solve IT problems and find solutions.
- Staff expressed interest in contributing ideas, requirements, solutions, and feedback about potential new service offerings. Currently, there are no adequate channels for this type of communication.

MEANINGFUL WAYS TO ENGAGE USERS ABOUT NEW SERVICES

- There are gaps in communication with units and end users regarding new services. Respondents reported a need to plan for training and support whenever a new service is rolled out.
- There is a need for iterative engagement of representatives from units to better understand their requirements for services and tools.
- There is a need for channels to provide input to IT decision-making, to understand the decision-making process, and to seek improvement and training on existing services.

Findings: There is a gap in user engagement strategy for IT units. The result is a lack of awareness of the IT services that are available, how to access services, and how to communicate with and provide feedback to IT service providers. Moreover, users feel they have little meaningful input into or understanding of factors responsible for decisions made around IT services.

IT SUCCESSES

In addition to IT needs and challenges, stakeholders consistently identified some areas of IT that meet FoM needs.

COLLABORATION TECHNOLOGY

- Respondents associated with MD Education are satisfied with the collaboration tools available to them, particularly videoconferencing systems.
- Stakeholders appreciate MedIT's role in helping faculty, staff, and learners stay connected via videoconferencing. In particular, they acknowledged the excellent support that the videoconferencing teams provide.
- Initiatives to install or upgrade videoconference technology are well managed and supported by solid project management processes.
- Respondents from other Canadian medical schools reflected that UBC's technology-enabled distributed-education model is considered the 'gold standard' in medical education.

CUSTOMER-FOCUSED ORIENTATION

- Stakeholders have been pleased to see IT staff take a customer-focused approach to user support. IT staff members are seen as collaborative and willing to go above and beyond to take care of people's needs.

SUPPORT FROM UBC

- The UBC IT and MedIT service desks are generally responsive, helpful, and knowledgeable. Overall, people are satisfied with UBC's client/desktop support and the personalized service they receive.

EDUCATIONAL TECHNOLOGY

- Current IT services appear to support the FoM's education mandate well. Examples cited in interviews include MedIT's leadership in developing simulation facilities and UBC and MedIT's increased

responsiveness to student concerns, which has allowed for the improvement of the learning management system (MEDICOL) and related processes such as lecture recording.

5. FINDINGS CONCLUSIONS

The Future of IT in the Faculty of Medicine initiative was undertaken to determine how to better align IT to the mission of the Faculty. Feedback from stakeholders and analysis of the current state of IT in the FoM indicate that while some service needs are being met, there are a number of significant IT challenges, needs, and gaps that interfere with the ability of learners, faculty, researchers, and staff carry out their roles.

At the heart of these challenges, needs, and gaps lie four foundational issues:

- Inconsistent or inadequate access to IT **services** that are required to support day-to-day work
- Limited IT **governance** both within the FoM and with partner groups such as the Health Authorities
- Lack of visibility into IT **finance** at the FoM, particularly IT expenditures
- Insufficient **engagement** of individuals and groups in IT decision-making and by IT service providers

SERVICES

IT services that are required to enable learners, educators, researchers, and administrators to carry out their day-to-day activities are not being consistently delivered across the Faculty. Network connectivity and user support are two key issues that affect a number of groups, most significantly those located at hospital sites. Additionally, the lack of engagement with users has meant that IT providers have been unable to ensure ongoing alignment between IT services and users' needs.

Research as a whole has been significantly underserved by IT service providers at the University. Research needs have been largely met in an informal or ad hoc manner at the principal-investigator or centre level, and this is inadequate to support the Faculty's vision of world class research.

GOVERNANCE

IT governance within the Faculty is currently limited to specific groups or functions and does not provide linkages between departments, schools, centres, and institutes. As a result, Faculty leadership is unable to make strategic decisions about IT priorities across the FoM.

Similarly, there are no formal governance linkages between FoM IT and its partners. This lack of governance is particularly acute in the relationship between the University and Health Authorities and has caused a significant gap in IT integration between the groups. The integration gap impacts University users in two critical ways: Faculty IT users located in hospital spaces have difficulty getting the IT services they require, and researchers are restricted in their ability to gain access to valuable health and population data.

FINANCE

There is no clear or transparent accounting of IT expenditures across the FoM. Financial management of IT is distributed across FoM groups, and information about expenditures is incomplete and is not tracked against

specific services. The result is that leadership cannot effectively allocate IT resources to align with priorities and is unable to make informed decisions about IT service level and cost trade-offs.

ENGAGEMENT

There has been a lack of meaningful engagement with IT users across the faculty. At a tactical level, this has meant that people are unaware of what services currently exist and how to access them, and they have been unprepared for system changes. At a more strategic level, users feel they have little meaningful input into or understanding of factors responsible for decisions made around IT services.

The geographic distribution of the FoM has resulted in a sense of isolation and the development of silos between groups in the Faculty. Inconsistent engagement between IT users and those charged with delivery of IT services has contributed to users' lack of trust in the ability of IT providers to meet their needs. This results in inefficiencies and potentially large duplication of services.

If IT is going to fulfill its role as an enabler of the FoM's mission, these gaps must be addressed. The rest of this document provides the Future of IT in the FoM Steering Committee's recommendations regarding how to resolve these issues.

6. GOALS OF THE RECOMMENDATIONS

The following goals are based on the findings outlined above and demonstrate what IT service delivery at the FoM should look like in the future:

- IT enables and is directly tied to the Faculty's core missions of learning, research excellence, and health care innovation.
- IT needs, challenges, and gaps have been addressed.
- IT services are optimized to achieve effective and sustainable use.
- IT governance is transparent, responsive, and accountable.
- There is greater engagement between IT and their users.
- There is ongoing and continuous improvement of IT services.
- IT service delivery between the University and the Health Authorities is seamless.

7. RECOMMENDATIONS

If fully implemented, the following seven recommendations would address the foundational issues identified in the findings, leading to improved IT service delivery, governance, financial management, and engagement. The model underlying these recommendations respects the existing structure of the FoM. It aims to find a balance between centralized and decentralized IT decision-making, reflecting the need to have some centralization of services to enable efficient and effective use of resources, while also allowing a high level of autonomy for units. The recommendations are closely interrelated – it would be difficult to implement one without the others.

Table 3 lists the seven recommendations and specifies which foundational issue each recommendation addresses.

Table 3: Recommendations and the Foundational Issues They Address

Recommendation	Foundational Issue from Findings
Recommendation 1: Align the provision of and access to IT services to meet the Faculty’s needs.	Services
Recommendation 2: Develop and implement an IT service delivery model to directly support FoM research.	Services
Recommendation 3: Create a responsive, transparent, and accountable governance structure to manage IT within the Faculty that balances central and autonomous decision-making and has linkages within the University.	Governance
Recommendation 4: Evolve the governance structure and create operational forums to best support partnerships external to the University such as Health Authorities and the Ministry of Health.	Governance
Recommendation 5: Establish standard service costs and financial tracking and reporting consistent with best practices that will support benchmarking and continuous improvement.	Finance
Recommendation 6: Ensure that IT investments align with the Faculty’s vision, mission, and strategic commitments.	Finance
Recommendation 7: Develop a framework for engagement with individuals and groups.	Engagement

The rest of this document describes the recommendations in greater detail and suggests some of the steps needed to implement them.

RECOMMENDATION 1: ALIGN THE PROVISION OF AND ACCESS TO IT SERVICES TO MEET THE FACULTY’S NEEDS

One of the chief complaints from respondents was the inconsistency in fundamental (or core) IT services, such as wireless network access and device support. Several respondents emphasized the dichotomy in access to services – some groups are relatively well served while other groups struggle with the basics. Faculty and staff expressed concerns about the quality and usability of various IT services, including not knowing what services were available or how to access them. Workplace productivity is reduced by the absence of essential IT services and poor IT service delivery. This has both a financial impact and impede the Faculty in achieving its academic mandate.

This recommendation seeks to improve IT service delivery for all units and individuals within the Faculty. A number of activities are required:

ADDRESS GAPS IN IT SERVICES

IT services must be available to all faculty and staff in the FoM. Addressing all service gaps will take some time and require continued development of relationships with IT delivery partners such as the Health Authorities. However, a number of service issues that are under the control of MedIT and UBC IT can be addressed in the short term, such as providing device support to clinical departments that require it.

As MedIT and UBC IT work on immediate changes, they must work closely with affected units to ensure that each group’s specific issues are addressed by the proposed changes, and that individuals are aware of new services and how to access them.

Over the long term, the IT governance group will focus on addressing more complex service gaps.

DEFINE IT SERVICE CATEGORIES

IT service delivery in the FoM is complex. There are multiple IT service providers, multiple funding sources for IT, and vastly differing needs across the FoM. One way to manage this complexity is to categorize the types of services required by the FoM. This will help to define the applicable governance, scope, provisioning, support model, and funding for the services.

This report recommends grouping services in four categories:

- **Core services** are those required by all stakeholders in the FoM. They are available and provided to everyone. Costing follows a standard model and is clearly articulated. Email is an example of a core service.
- **Specialized services** are those that are used by a broad subset of stakeholders in the FoM. Specialized services are available to those who want to use them at a predefined cost. Videoconferencing is an example of a specialized service.
- **Boutique services** are used by only some groups or individuals. They are not provided by a central service provider but may be provided by a FoM group or shared third-party vendor. Genome sequencing systems are an example of a boutique service.
- **Individual services** are those that are selected and used by individuals, and are provided by third-party IT service providers without any coordination through the University. Personal productivity applications, such as calendars, task management, and annotation tools, are examples of individual services.

In the short term, it will be possible to complete an initial mapping of IT services to these four categories. In the longer term, the IT governance group will develop formal guidelines to determine which category a service belongs to and develop a framework for re-categorizing services and maintaining the list.

DEVELOP SERVICE DELIVERY MODEL

Once services have been identified and categorized, a service delivery model can be defined. The service delivery model will address the following questions:

- Who is accountable for providing the service?
- How is the service managed?
- Where is the service provided?
- What are the service levels (for example, is support available 24/7 or 8 a.m. to 5 p.m.)?
- How are costs for the service to be charged and paid?
- How is information about the service communicated?
- How is service performance monitored?
- How is accountability monitored and managed?

The service delivery model should align with the service categories proposed above. For example, central service providers such as MedIT or UBC IT may be best positioned to provide core and specialized services, which are widely used across the FoM. Focusing the central providers on broadly used services would allow for efficiencies in delivery of those services, while freeing up resources within units to focus on the boutique needs of their groups. However, this approach only works if core service gaps identified during this initiative have been addressed.

The budget and funding model for services should be established as described in the governance and finance recommendations (Recommendations 3, 5, and 6).

ESTABLISH A SINGLE POINT OF CONTACT FOR IT SUPPORT

The deployment of IT services must also establish a single point of contact for IT support for all FoM stakeholders. Currently, there are many different IT groups that an individual might call if he or she has an IT problem or question. Groups include the MedIT Service Desk, the UBC IT Service Centre, Health Authority service desks, and IT support personnel for particular units. It can be confusing to determine who to call, and can take multiple calls before finding the right group.

The proposed alternative is to have one support group that would act as the point of contact for *all* FoM IT-related problems and requests. This support desk would not be able to resolve all issues, but would be able to direct or escalate the issue to the appropriate group.

For example, in the current situation, those working out of a hospital site need to know whether their computers are provided by a Health Authority or the FoM in order to determine which support desk to call. In a single point of contact model, one support desk would handle questions about both Health Authority and FoM computers.

The single contact would not be the only contact point between IT and stakeholders. Client services personnel will play a critical role in ensuring that groups and individuals are aware of the services that are available. However, the single contact will provide stakeholders with a clear path through which to access services and resolve service problems.

Establishing a single contact across all FoM IT service providers will take some time, because it will require careful coordination and tight integration between all groups. The process can start by focusing on core and specialized services offered by MedIT and UBC IT. Over time, it should be possible to expand the single support contact to include boutique services offered by FoM groups, and finally to include services offered by partners such as the Health Authorities.

IMPLEMENT A CONTINUOUS IMPROVEMENT PLAN FOR IT SERVICES

Once deployed, IT services should be part of a continuous improvement plan. The continuous improvement plan for each service will lay out an approach for regularly reviewing the quality of the service and engaging stakeholders to ensure that the service continues to meet their requirements. The plan would also include regular reviews at the appropriate level within the IT governance structure.

Improvement planning can start immediately for core and specialized services offered by MedIT and UBC IT. Over time, it may be possible to develop communities of practice that could help provide continuous improvement for boutique services.

RECOMMENDATION 2: DEVELOP AND IMPLEMENT AN IT SERVICE DELIVERY MODEL TO DIRECTLY SUPPORT FACULTY OF MEDICINE RESEARCH

The FoM research community has been underserved from an IT services perspective. The findings clearly indicate that research has more acute IT deficiencies than the other functions of the FoM, such as education. Research also has many unique and often complex IT needs and depends heavily on large quantities of information that exist in

partner organizations such as the Health Authorities. This recommendation addresses the requirements of the research community in two areas: development of IT services for research and access to health and population data.

DEVELOP A PLAN FOR RESEARCH COMPUTING SERVICES

The first step in improving IT services for research is the development of a plan to address the unique needs and challenges of the research community. This plan should tie into and build on the proposed model for research computing at UBC shown in Figure 3. Instead of taking a high-level approach to identifying needs, the plan should be driven directly by the issues identified by principal investigators.

Key aspects of the approach are:

- Establish a vision for research computing for the Faculty
- Determine which IT services are required to support research – including technical infrastructure that is essential for all research initiatives
- Determine which services are provided by the different tiers and the corresponding support models
- Identify gaps in service and develop strategies to address those gaps
- Coordinate service delivery across the various service providers
- Establish support for researchers
- Develop funding models for research IT services
- Create mechanisms to draw on expertise of specialized IT personnel in various research groups
- Develop processes to respond to emerging needs for research IT services and personnel

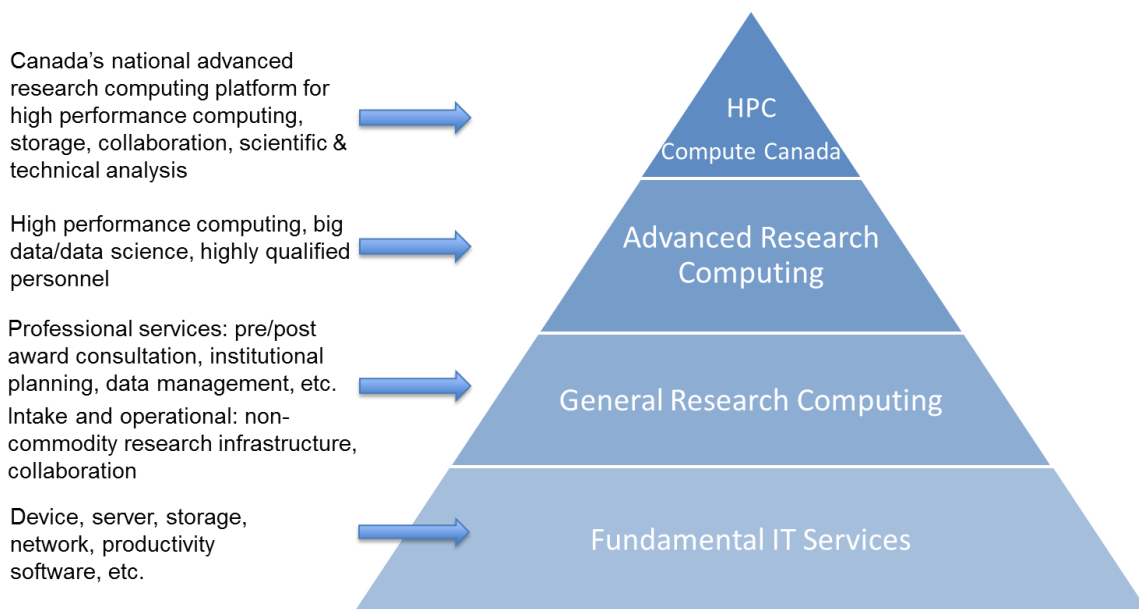


Figure 3: Proposed Model for Research Computing at UBC

ADDRESS ISSUES WITH ACCESS TO HEALTH AND POPULATION DATA

Although not an IT issue per se, access to health and population data for research is a critical need identified in the findings. Increased access to health and population data relies on a deeper partnership with the Health Authorities and on addressing legitimate privacy issues. The Health Authorities are actively working to improve their clinical information systems and this limits what can be accomplished in the short term. However, a FoM plan can be developed in parallel to address:

- The vision for access to health and population research data, and an explanation of the benefits for research and for health care in BC
- Standard policies for data transfer and data privacy
- Longer term engagement with the Ministry and with Health Authorities
- Opportunities for input to the clinical systems initiatives underway at the Health Authorities

The role of data stewards will be critical in developing and implementing the plan. Data stewards would be responsible for overseeing and providing direction regarding data management for the Faculty, including data management processes, policies, and responsibilities. Data stewardship is a key component of managing IT security and the risks that come with sharing health and population data, but also with facilitating access to such data.

This recommendation would support and in turn would be supported by the development of the Academic Health Sciences Network (AHSN).

RECOMMENDATION 3: CREATE A RESPONSIVE, TRANSPARENT, AND ACCOUNTABLE GOVERNANCE STRUCTURE TO MANAGE IT WITHIN THE FACULTY THAT BALANCES CENTRAL AND AUTONOMOUS DECISION-MAKING AND HAS LINKAGES WITHIN THE UNIVERSITY.

Information technology is an integral part of the FoM. IT governance within the framework of overall Faculty governance determines how IT supports the FoM's mission. However, the findings demonstrate that current IT governance is limited and that this is an underlying cause of many of the FoM's IT challenges.

Governance refers to all of the processes that coordinate and result in decisions about an organization's resources. The structure or form of these processes must address several critical elements, including:

- Who has the authority
- How decisions are made
- How voices of stakeholders are heard
- How transparency and openness are assured
- How accountability is rendered

Effective governance must align with the mission of the organization and follow accepted principles¹⁷. Any proposed governance model must clearly describe how it will address each of these elements, support the achievement of the Faculty's mission, and adhere to principles of good governance.

¹⁷ Appendix F provides an overview of the United Nation's principles of good governance.

The IT governance model proposed for the FoM must also be guided by previously approved principles regarding IT governance and service delivery. In 2013, the IT Optimization Committee developed “Vision and Guiding Principles” and “Operating Principles for Technology Support at the Faculty of Medicine.” These principles were reviewed and approved by the Committee of Department Heads and School Directors, and are outlined in Appendix G.

This recommendation (Recommendation 3) describes a proposed governance structure to manage IT relationships within the FoM and between the Faculty and University. Recommendation 4 focuses on governance to manage relationships with external groups, such as Health Authorities and government ministries. The models described in these recommendations include some of the governance elements outlined above, although many of the details will be determined as governance is implemented.

A number of steps are required for Recommendation 3:

DEVELOP A FEDERATED GOVERNANCE STRUCTURE

SELECTING A FEDERATED STRUCTURE VS. OTHER GOVERNANCE STRUCTURES

There are three common governance models – centralized, decentralized, and federated – based on different decision-making styles within organizations:

- In the **centralized model**, efficiency and cost control is emphasized over the responsiveness of units within the organization. There is greater focus on standards, synergies, and economies of scale.
- In a **decentralized model**, units within the organization have greater ownership and responsiveness but integration and synergies suffer, resulting in higher costs.
- The **federated model** combines the best features of the other two models. In the federated model, common IT systems and infrastructure resources are pooled while individual units control their specific systems.¹⁸

The IT governance model that is selected should match the decision-making style of the organization. The FoM operates as a federated organization: the Faculty as a whole sets some overall direction but units and individuals retain a high level of autonomy. Attempting to impose a centralized or decentralized IT model on the FoM’s federated decision-making structure would likely fail. Instead, formalizing a federated IT governance model will allow IT governance to build upon the existing decision-making structures and culture within the Faculty.

Taking a federated approach would also be consistent with the model used by other Canadian medical schools. The review of medical school IT governance that took place during the information-gathering phase of this initiative indicates that a federated model is the preferred approach for IT governance, where governance structures exist. Moreover, a federated model would be consistent with the approach being implemented for IT governance at the University as a whole.

A FEDERATED MODEL FOR THE FACULTY OF MEDICINE

The federated IT governance model proposed for the FoM aligns IT decision-making with the categories of IT services outlined in Recommendation 1: core, specialized, boutique, and individual. In this model, many different

¹⁸ http://www.cio.com.au/article/345139/think_tank_better_it_governance

groups have a role to play in the delivery and consumption of these four types of IT services. A broad description of the groups involved in governance and their areas of responsibility follows:

- **The Individual:** Individuals are central to the governance of IT in the FoM and are generally the ultimate consumers of the services. Individuals must have opportunities to provide input into the direction of services and a meaningful role in decision-making about IT. They are a key part of the feedback mechanism that ensures services are meeting the Faculty's needs.
- **Unit IT:** Units provide oversight for the boutique services relevant to their particular groups. They also make decisions about their groups' use of core or specialized services, although these services are offered to all FoM groups.
- **Mission Pillars – Education, Research, and Health Care Innovation:** The FoM outlines a number of commitments as part of its strategic direction, including commitments to education, research and health care innovation. Each of these pillars represents a key area of focus for the Faculty and has specific IT needs. The pillars provide guidance to IT service providers regarding the needs of their portfolios and help identify and prioritize key initiatives.
- **Faculty of Medicine IT (MedIT):** MedIT is focused on delivering core and specialized services that are used widely across the FoM and are unique to the Faculty, such as services that enable distributed health education and research. This group partners with the Health Authorities to provide IT to stakeholders based in hospital locations. MedIT works closely with UBC IT to ensure that needs related to core and specialized services are met.
- **University IT (UBC IT):** UBC IT has responsibility for core and specialized services that span the University. Because their view takes in the entire organization, they are primarily focused on large-scale systems and are less focused on specific needs.

In this model, all groups that provide IT services have a responsibility to monitor usage of the services they provide to understand when user needs are changing and when services might need to be moved into a different service category (for example, a boutique service becoming a specialized service).

Federated governance across these groups enables economies of scale and efficiencies for those IT needs that are shared across the Faculty or University, while positioning units to be responsive to the specific needs of their faculty, staff, and learners. Formalizing a federated structure will decrease risk for the Faculty because it will provide clarity for roles and responsibilities related to IT security and privacy.

It has not yet been determined how these groups will interact for IT governance and in what forums decision-making will take place. These details will be developed as the governance structure is implemented. A description of how IT costs and funding interact with this model can be found in Recommendation 6.

CONNECTIONS WITH THE UNIVERSITY

It is important to situate the FoM's IT governance structure within the IT governance structure for the University. Currently, UBC IT is a key IT service provider for the FoM; in the model proposed above, UBC IT's role becomes more prevalent as MedIT and UBC IT work towards providing complementary services within their respective mandates, and continue to reduce duplication of services. These two groups are more than just partners in delivering IT services; they are two fundamental elements of an IT service delivery organization for the FoM. As a

result, it is essential for FoM IT governance to be integrated with IT governance for the University (and vice versa). Governance connections between these groups will be determined as the FoM governance structure is developed.

The activities outlined below clarify additional key aspects of the proposed federated governance model.

DEVELOP PRINCIPLES TO ENABLE DECISION-MAKING AND INTERGROUP DIALOGUE

In a federated governance model, it can be difficult to understand where decision-making boundaries lie between groups. Because certain decisions are decentralized, the federated model can also suffer from the development of silos that inhibit collaborative IT decision-making. Principles or guidelines can help clarify decision-making and enable conversations across the Faculty that will identify shared needs and opportunities.

A number of principles to help guide decision-making were established by the IT Optimization Committee. (See Appendix G.) Additional principles or guidelines will be required to:

- Assist in defining core, specialized, boutique, and individual services
- Determine which types of decisions are made centrally and which are made within units or by individuals
- Establish decision-making guidelines for the central group, e.g., criteria and timelines
- Provide operational and financial oversight for core and specialized services, such as how to ensure the Faculty gets value for the services

ESTABLISH MECHANISMS TO ENABLE RESPONSIVENESS, TRANSPARENCY, AND ACCOUNTABILITY

In addition to developing and following the principles outlined above, other mechanisms should be established to enable the governance structure to be responsive, transparent, and accountable. Many of these mechanisms will be determined during the implementation of a governance structure. Proposed mechanisms include:

- **Representation in governance:** It will be critical to have appropriate representation from across the Faculty on the IT governance groups. This will include consideration of all key IT stakeholders, balancing breadth of representation with the need to ensure that groups remain small and functional.
- **Continuous improvement and change:** Initial IT governance structures will reflect the immaturity of the FoM in the realm of governance. IT governance mechanisms should be considered a work in progress. Some mechanisms will not be successful; it will be necessary to learn from these failures and adjust. IT governance must continue to change as it matures.
- **Financial reporting:** As addressed in the Finance recommendations, transparent financial reporting on IT services and projects will help ensure that investments support the appropriate priorities.
- **Governance reporting/communications:** Regular communication from the governance groups to stakeholders will establish visibility and build trust. Communications should include updates on process and decisions, and reporting on the quality and reliability of services.

- **Project pipeline:** A pipeline for core and specialized projects will allow the governance groups to manage the flow of projects through the organization. Project approvals should comply with the guidelines established by the governance groups, and be made based on the federated governance model.
- **Ties to the engagement function:** Recommendation 7 outlines an approach for a client services function that will support ongoing engagement between IT users and service providers. Governance groups should have direct ties to the client services function as one way to help them understand and react quickly to changes in the IT needs of users.

GOVERNANCE NEXT STEPS

The federated model begins to describe how to address the critical elements and principles of good governance; however, many of the details will be determined as the model is refined and implemented.

The first step in the implementation of the model will be to establish an interim IT governance structure to develop terms of reference and composition of a formal governance body. An administrative function will be required to support governance and should be established at the same time as the interim governance structure.

RECOMMENDATION 4: EVOLVE THE GOVERNANCE STRUCTURE AND CREATE OPERATIONAL FORUMS TO BEST SUPPORT PARTNERSHIPS EXTERNAL TO THE UNIVERSITY SUCH AS HEALTH AUTHORITIES AND THE MINISTRY OF HEALTH.

The relationships with organizations outside of the FoM are critical for success; the Faculty cannot conduct its business without them. While the FoM does not have direct control over priorities or decisions made within organizations such as the Health Authorities, Ministries of Health or Advanced Education, or other universities, to be able to fulfill the Faculty's mandate, it should ideally have the means to influence the decisions of those groups. A formal governance structure should be in place to guide and support these relationships.

The Faculty needs to interface with its partners at multiple levels of the organizations, including:

- Executive relationships (strategic)
- Directional relationships (logistical)
- Operational relationships (tactical)

The need for formalized coordination of these relationships is germane but not exclusive to the FoM. Coordination with the needs of other Health Faculties and programs at UBC should be considered.

A critical long-term objective is to develop an integrated and sustainable model for alignment between the Faculty and its partners to support clinical and academic missions. This may involve a joint governance structure for IT services that crosses organizational boundaries with mutual representation at respective planning and decision-making forums.

The ultimate external governance structure should resemble the model below. The development of an Academic Health Science Network will require close collaboration between the Health Faculties at UBC, including the FoM, and the Health Authorities. Success will depend on integrated IT services that allow for the cycling and recycling of data; this will require a clear and explicit partnership between the organizations.

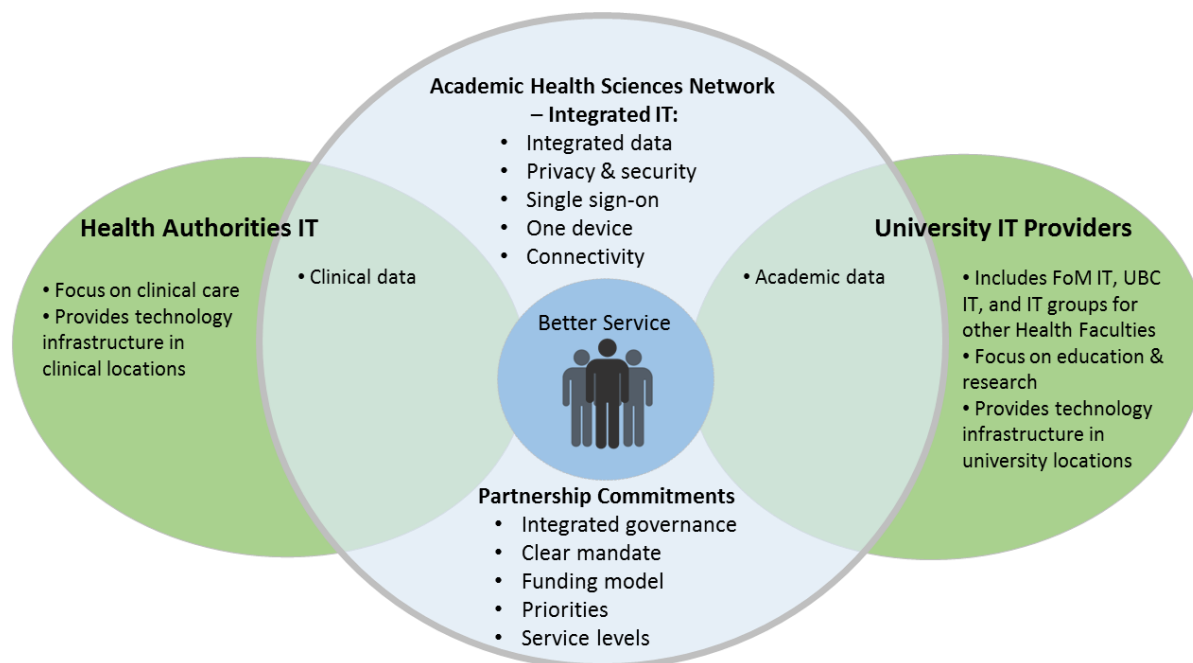


Figure 4: Model of Integrated IT Governance between UBC and Health Partners

Achievement of this objective will take time and will need to proceed iteratively, by taking the following approach:

LEVERAGE EXISTING RELATIONSHIPS AND GOVERNANCE STRUCTURES TO FURTHER DEVELOP LINKAGES BETWEEN THE FOM AND ITS PARTNERS

The Faculty currently has ad hoc relationships with its partners at all of the levels outlined above. The evolving development of the Academic Health Science Network provides an excellent opportunity to build on these relationships and establish formal governance.

The Dean of the Faculty of Medicine will lead the process, assisted by UBC’s Vice Provost Health and Deputy CIO Health. These roles can influence key players in the Health Authorities and the ministries, particularly at the executive level. The Director of MedIT has a role in developing and strengthening directional and operational relationships.

Initially focusing on small, achievable initiatives will help build momentum and alignment. Full implementation will require some alignment between Health Authority and FoM IT goals. Senior leaders in the Faculty should work with the Ministry of Health to ensure that support of the academic mission (e.g., expanding the definition of ‘continuum of care’ to explicitly include research and education) is included in the priorities of the Faculty’s partners.

RECOMMENDATION 5: ESTABLISH STANDARD SERVICE COSTS AND FINANCIAL TRACKING AND REPORTING CONSISTENT WITH BEST PRACTICES THAT WILL SUPPORT BENCHMARKING AND CONTINUOUS IMPROVEMENT.

Recommendations 5 and 6 position the Faculty to better understand IT expenditures to enable improved and informed decision-making about IT. They are not directed at cost-cutting, which was not the mandate of this initiative. Successful governance requires that the Faculty improve the clarity and visibility of IT costs and spending, and better coordinate its IT investments.

Recommendations 5 and 6 are dependent on the recommendations outlined above. It will be hard to implement these financial recommendations until formation of the governance structure has started and IT services are defined.

The findings determined that the FoM spent at least \$32 million in 2014 on IT-related services and initiatives. It took several weeks to compile the financial data, and the accuracy of the estimate is questionable due to inconsistencies in the way IT transactions are recorded. Improvements in the tracking of IT expenditures are required to support management, oversight, and standardized reporting. Consistent and complete financial reporting will be required to ensure that IT expenditures support the Faculty mission.

There are three components to this recommendation, all of which require the support of the FoM's Financial Services Team:

DEVELOP AND IMPLEMENT STANDARD TRACKING, CODING, AND RECONCILIATION OF IT EXPENDITURES

Increased visibility into IT expenditures at the Faculty is contingent upon standardized tracking, coding, and reconciliation of IT costs, including human resources costs. Without standardization, it will remain difficult and slow to access information about IT expenditures within the Faculty.

Any changes made to tracking and coding will need to work within the limitations of the UBC Financial Management System (FMS) and Human Resources Management System (HRMS). Costs and job classifications within the FMS and HRMS are structured to support the University's needs. As a result, there are constraints on the FoM's ability to adapt coding for IT expenditures. However, there are opportunities to standardize tracking of these costs within the University's existing financial and human resources models.

DEVELOP AND IMPLEMENT A STANDARDIZED FINANCIAL REPORTING MODEL

Once IT expenditures are consistently tracked and reconciled, it will be possible to develop and implement a Faculty-wide standardized financial reporting model for these expenditures. The model must provide a balance between the required reporting and ease of use. Requirements will include reporting by:

- Entire faculty
- Unit (department, school, centre, institute, Dean's Office)
- Mission pillar (education, research, health care innovation)

The model must also ensure that all relevant information is captured and available in standard reports, including HR-related costs.

ESTABLISH STANDARD COSTS FOR SERVICES

Developing standard IT costs for services is critical for making decisions about IT priorities and for providing transparency and consistency regarding IT charges. The recommended approach to developing standardized costs is to estimate costs for services on an annual basis. Tracking actual costs for services is complex and time-consuming; as a result, administrative overhead associated with tracking actual costs is generally higher than any benefits received from the process. The use of cost estimates rather than actual costs is endorsed by IT research and advisory think tanks such as Gartner¹⁹.

Because human resources are the biggest cost component in IT services, it is important that these costs be included.

RECOMMENDATION 6: ENSURE THAT IT INVESTMENTS ALIGN WITH THE FACULTY'S VISION, MISSION, AND STRATEGIC COMMITMENTS.

Financial decision-making should balance the need for autonomy of units with the need to efficiently coordinate resources across the FoM. To achieve this, financial decision-making processes should be integrated into the Faculty's IT governance structures proposed in Recommendation 3:

INTEGRATE FUNDING DECISIONS WITH GOVERNANCE MODEL

The key component in integrating funding decisions into the proposed governance structure is developing guidelines that determine which governance groups will be responsible for making decisions about IT funding. Establishing these guidelines will ensure that financial decision-making is responsive and is carried out by the appropriate group.

Specific guidelines should be developed as part of the implementation of recommendations. They are expected to adhere to the following principles:

- Funding follows the services model described in the Recommendation 1 section. That is, decisions about core and specialized services are made at the Faculty level while decisions about boutique services are made at the unit level.
- All decisions on new initiatives will consider sustainment costs (e.g., capital renewal, human resources, training, etc.), as well as implementation costs.

RECOMMENDATION 7: DEVELOP A FRAMEWORK FOR ENGAGEMENT WITH INDIVIDUALS AND GROUPS.

Two important findings from the first phase of the project relate to the way individuals within the FoM connect with IT and each other. The first finding is that there has been a lack of meaningful engagement with IT users

¹⁹ Gartner (2012). Determining the Right Level of IT Operational Spending.

across the Faculty. Engagement in this context refers to the consultation and involvement of users in IT decision-making. The second finding is that there is a sense of organizational dissonance – the uncomfortable state of tension that arises from the misalignment of key organization elements. Organizational dissonance within the FoM can be explained by the concept of virtual distance (described below), and can be remedied in part by increased engagement between IT and stakeholders.

Virtual distance is a sense of personal detachment brought about by a combination of three factors²⁰:

- **Physical Distance:** Factors based on real geographic separation in both space and time. In addition to geographic separation, physical distance factors include the extent to which people work for or feel like they work for different organizations.
- **Operational Distance:** The things that get in the way of effective collaboration on a day-to-day basis. Factors here include multi-tasking and limitations caused by technology or communication method (e.g., email not conveying the appropriate tone).
- **Affinity Distance:** The extent to which we lack relationships that are deep in nature. Affinity can be influenced by cultural differences, differences in social status, prior working relationships, and the sense of interdependence for future success.²¹

High virtual distance can cause some surprising negative effects. Trust and collaboration are higher when virtual distance is relatively low and lower when it is high.

A distributed organization such as the FoM is subject to all three components of virtual distance. Physical distance is created by the Faculty's geographic distribution. Operational distance is created in part by the fact that we rely on communication technologies to collaborate across the distributed environment. Affinity distance is high because we often do not know our colleagues from other FoM groups, and are often working towards independent goals. This virtual distance can dramatically influence the delivery of and satisfaction with IT services, among other things.²²

Engagement is a key tool for managing virtual distance as it can reduce operational and affinity distance by helping people develop personal relationships and removing barriers to day-to-day collaboration. This recommendation focuses on increasing engagement as a way of reducing virtual distance between IT and stakeholders across the FoM and the organizational dissonance that results.

Two broad categories of engagement need to occur:

- **Engagement of Individuals and Groups in IT Decision-Making and Service Delivery:** FoM units and the individuals within those units need mechanisms that allow them to provide input into IT decision-making. Their involvement needs to occur across the lifecycle of any service, including:
 - Making the decision to introduce, retire, or replace a service
 - Determining the requirements for a service
 - Rolling out the service with the appropriate support (e.g., training, communications, etc.)
 - Providing ongoing support for the service including a single point of contact for problems or requests

²⁰ <http://www.strategy-business.com/article/li00026?gko=68945>

²¹ http://www.waysofknowing.net/VR_Stuff/VirtualSeminarsItems/KarenLojeski%231.html

²² For more discussion on virtual distance, see: <http://theconversation.com/virtual-distance-technology-is-rewriting-the-rulebook-for-human-interaction-38693>

- Collecting feedback on the service and iteratively using this input to improve the service

The purpose of increasing the engagement of individuals and groups within the decision-making structure is twofold: to increase transparency and accountability in IT governance and decision-making, and to improve IT decision-making by ensuring that it is responsive and reflective of FoM needs.

- **Engagement of IT Staff Across the Faculty of Medicine:** The second aspect of engagement is improving collaboration and coordination among the IT groups in the Faculty and creating a sense of community, reducing barriers and silos in the process. The model needs to support engagement between the groups on services and initiatives, increase the awareness of the services available, allow groups to coordinate activities, and provide opportunities to leverage expertise.

Achieving these two types of engagement will require the following steps:

DEVELOP CLIENT SERVICES ROLES

Client services roles within the central IT group (MedIT) should be established to act as liaisons between groups and IT providers and to enhance their ability to engage in IT decision-making. The individuals in these roles will also support the engagement aspects of governance and the service model changes addressed in the other recommendations.

DEVELOP AND IMPLEMENT ENGAGEMENT PLAN

One of the first activities for the people in the client services roles would be to develop a client-engagement strategy and plan for IT in the FoM. In addition to the specific recommendations included in this document, the plan should consider:

- The implementation of multiple channels for client engagement and feedback to ensure that existing services meet the needs of the FoM
- Mechanisms to ensure that governance groups and service providers understand what new services the user community wants and needs, so they can respond accordingly
- A model to reduce the geographic, operational, and affinity distance between IT staff and clients
- The establishment of communities of practice for IT resources to reduce affinity distance, facilitate the sharing of expertise across the FoM, and increase awareness of existing IT resources.

IMPLEMENT OTHER ENGAGEMENT ACTIVITIES

Other activities related to engagement that are required to support the recommendations include:

- IT representation at FoM executive forums
- IT consultation and advice for major Faculty initiatives, including early engagement with Faculty IT group(s) to ensure projects are defined with IT needs and roles considered at early stages
- IT consultation with individuals and groups to assess needs and impacts for IT implementations or upgrades
- Appropriate stakeholder and user representation for IT governance and project committees

8. RECOMMENDATIONS CONCLUSION

A federated model for IT governance and services underlies all of the recommendations in this document. The federated model would balance centralized and decentralized decision-making (governance), funding, and delivery of IT services, while making all governance groups responsible for engagement and responsiveness to users.

Figure 5 provides an overview of the federated model, pulling in key elements of the proposed recommendations.

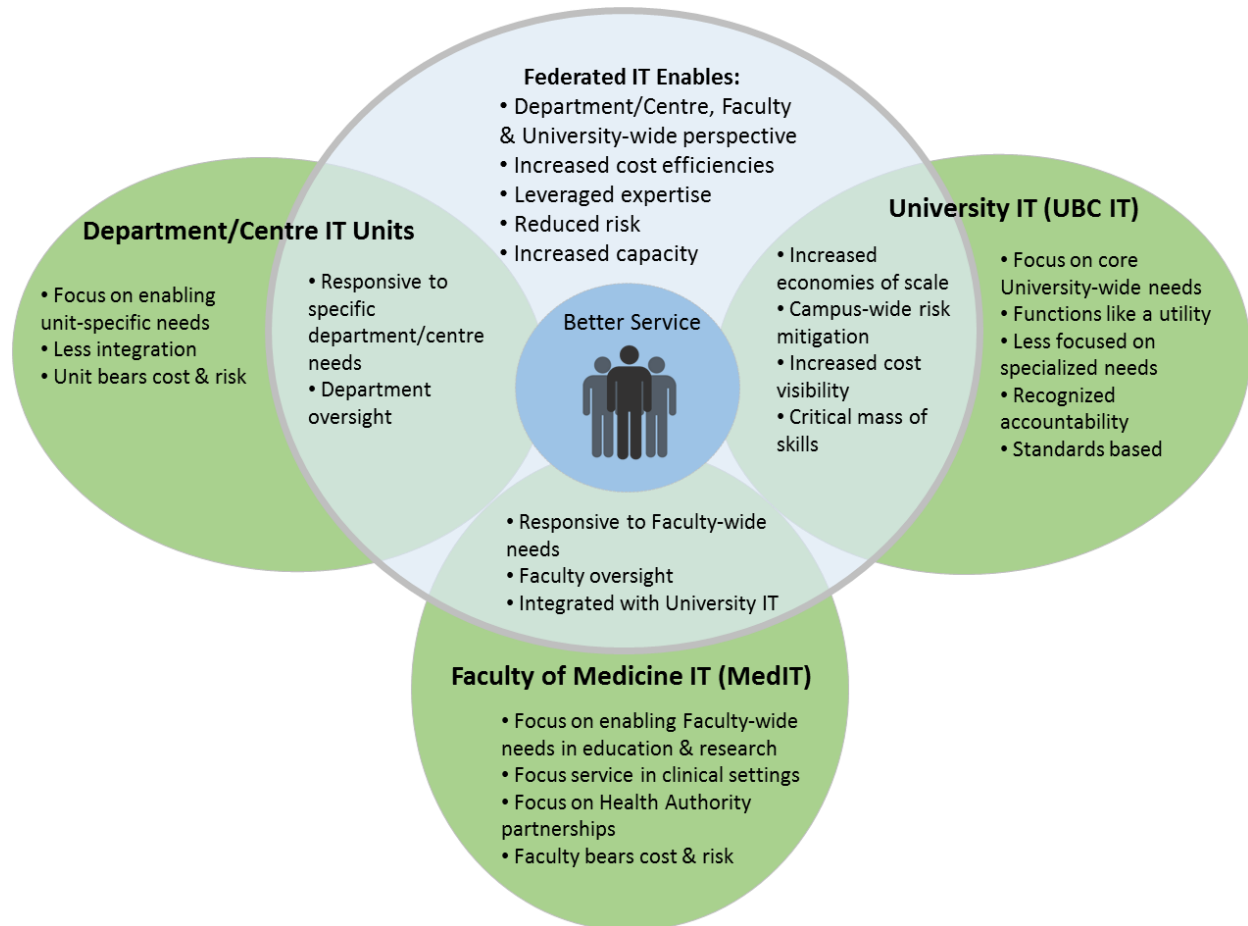


Figure 5: Federated Model for IT in the Faculty of Medicine

The federated model may not be a perfect solution for all of the IT service challenges identified by this initiative. However, the findings clearly indicate that a more organized and integrated approach to IT is needed, and the federated model is considered to be the best option for the FoM.

The first step in implementing this model would be the establishment of a governance structure. In its initial stages, the governance group would focus on developing terms of reference, principles and guidelines, and other foundational items needed to fully implement the governance model. The Faculty needs to demonstrate resolve towards learning from inevitable minor failures and iterating and improving the governance model.

It is clear that a number of urgent service gaps need to be addressed. These issues cannot wait for the governance structure to be fully established. While governance is under development, Faculty leadership should provide both MedIT and UBC IT with the mandate of addressing IT service issues that are currently within their control.

IT is a key enabler of the mission of the FoM. The service, governance, finance, and engagement recommendations outlined above would help position IT at the FoM to remain aligned with and responsive to the Faculty's IT needs.

Section 9 of this document outlines an action plan for the initial steps to implement the recommendations.

9. ACTION PLAN

The action plan outlines the steps required to start implementing the recommendations described in this document. Note that there is a sequence to the actions; implementing them out of sequence will be difficult.

The IT governance group will own the action plan and will prioritize and delegate the implementation of the recommendations as appropriate. The following table outlines proposed activities, the recommendations they support, and the anticipated time frame for the start of the activity.

Table 4: Action Plan for Implementation of Recommendations

Recommendation Category	Recommendation Number	Time Frame for Start of Activity	Activity
Services	1	Next 3 months	Start addressing IT service gaps that are under the control of MedIT and UBC IT
Services	1	Next 3 months	Develop a preliminary list of core and specialized IT services
Services	2	Next 3 months	Start developing an approach for research computing services in the FoM
Governance	3	Next 3 months	Form an IT governance group with the mandate to lay the groundwork for IT governance, including determining terms of reference and composition of the group
Governance	3	Next 3 months	Establish an administrative function to support governance
Finance	5	Next 3 months	Start developing guidelines and requirements for tracking and reporting IT expenditures
Engagement	7	Next 3 months	Establish a client services team to support engagement
Engagement	7	Next 3 months	Start developing a client engagement plan
Governance	4	4 months to 1 year	Start identifying opportunities to incorporate partnerships into the governance model
Finance	6	4 months to 1 year	Where possible, budget 2017-2018 IT expenditures through the new governance structure

10. APPENDICES

A. STEERING COMMITTEE MEMBERS

Table 5: Future of IT in FoM Steering Committee Members

Role of Member	Name	Job Title
Chair: FOM Department Head	Mike Allard	Head, Department of Pathology and Laboratory Medicine
Senior FOM IT Leader	Dave Lampron	Director, Medicine IT
Deputy CIO, Health	Ken Nowlan	Deputy CIO, Health
Executive Associate Dean, Education	Dave Snadden	Executive Associate Dean, Education
Executive Associate Dean, Research	Howard Feldman	Executive Associate Dean, Research
Lead – Strategy, Governance, and Cost Models	Ted Stedman	Western Management Consultants
Lead – Service Need, Fulfillment, and Engagement	Aarti Paul	Senior Client Services Manager
Change Management Lead	Sarah Mair	Change Management Analyst
Department Heads (clinically based)	Bruce Forster	Head, Department of Radiology
Department Heads (University based)	Roger Brownsey	Head, Department of Biochemistry
School Director	Valter Ciocca	Director, School of Audiology and Speech Sciences
Research Centre Director	Keith Walley	Director, Centre for Heart Lung Innovation
Department or School Administrator	Colleen Tinline	Director of Administration, Department of Psychiatry
Senior Leader, Health Authority	Karen Whitson	Executive Director, Corporate Information Services, Provincial Health Services Authority

B. INTERVIEWS AND GROUP SESSIONS

INTERVIEWS

Interviews were held with departments, schools, centres, and institutes between January and June 2015. Data from interviews that took place before May 20 is included in this report. See Table 6 for a list of groups that participated in the sessions. After May 20, interviews focused on validating the information that had been collected. Later groups helped shape the findings in this report, but data from these sessions is not included in the charts and percentages. See Table 7 for groups that participated in sessions after May 20.

Table 6: Groups Interviewed Before May 20

Departments and Schools	Centres and Institutes	Dean's Office Unit & Programs
<ul style="list-style-type: none"> Anesthesiology, Pharmacology and Therapeutics Biochemistry and Molecular Biology Cellular and Physiological Sciences Dermatology and Skin Science 	<ul style="list-style-type: none"> BC Cancer Agency BC Centre for Disease Control – Hepatitis, Clinical Prevention Services Centre for Blood Research Centre for Health Evaluation and Outcome Sciences (CHEOS) 	<ul style="list-style-type: none"> eHealth Strategy Office Island Medical Program Northern Medical Program Southern Medical Program

Departments and Schools	Centres and Institutes	Dean's Office Unit & Programs
<ul style="list-style-type: none"> • Emergency Medicine • Family Practice • Medicine • Obstetrics and Gynecology • Occupational Science and Occupational Therapy • Ophthalmology and Visual Sciences • Orthopedics • Pediatrics • Physical Therapy • Psychiatry • Radiology • Surgery • Audiology and Speech Science • Population and Public Health • Population and Public Health – Population Data BC 	<ul style="list-style-type: none"> • Centre for Heart Lung Innovation (UBC James Hogg Research Centre) • Centre for Hip Health and Mobility • Centre for Molecular Medicine and Therapeutics • Child & Family Research Institute • Genome Sciences Centre • Human Early Learning Partnership • International Collaboration On Repair Discoveries (ICORD) • Providence Health Care Research Institute • Vancouver Coastal Health Research Institute • Vancouver Prostate Centre 	

Table 7: Groups Interviewed After May 20

Departments and Schools	Centres and Institutes	Other
<ul style="list-style-type: none"> • Pathology and Laboratory Medicine • Surgery 	<ul style="list-style-type: none"> • BC Centre for Disease Control • BC Cancer Research Centre • Centre for Excellence in HIV/AIDS • Centre for Health Education Scholarship • Pacific Parkinson's Research Centre 	<ul style="list-style-type: none"> • Vancouver Coastal Health – Emergency Medicine

GROUP SESSIONS

Small group sessions were organized primarily by location, although sessions were also held for undergraduate students, graduate students, and residents. The following sessions were held:

- Point Grey campus
- Vancouver General Hospital
- Point Grey campus and Vancouver General Hospital: Dean's Office staff
- BC Cancer Agency
- Children's and Women's Hospital of BC
- St. Paul's Hospital
- Royal Columbian Hospital
- University of Victoria and Royal Jubilee Hospital
- University of Northern BC and University Hospital of Northern BC
- University of BC Okanagan and Kelowna General Hospital
- MD undergraduate student focus group

- Graduate and resident focus group

C. EXISTING IT ORGANIZATIONAL STRUCTURE

The following organization chart shows the IT organizations that provide IT services to FoM users. The chart also shows senior leadership positions and their reporting relationships. A few points should be highlighted:

- The Director of MedIT reports to the Chief Information Officer (CIO) of UBC IT.
- The Deputy CIO Health reports to the Vice Provost Health.
- Although there is a reporting relationship to the Dean of Medicine for the leadership positions of respective IT organizations, the Dean's involvement in IT decisions is generally budgetary, and there is little or no connection between the various IT units within the Faculty.
- Although the Executive Associate Dean Education has oversight for IT in the educational portfolio as a whole, he does not have a reporting relationship with IT in departments or schools.
- The Health Authority IT organization(s) and groups have no connection or relationship with the IT units or staff providing services to the department or research centres located on Health Authority premises.
- For a detailed organization chart for UBC IT, see <https://it.ubc.ca/about>.
- For a detailed organization chart for MedIT, see <http://medit.med.ubc.ca/about-us/>.

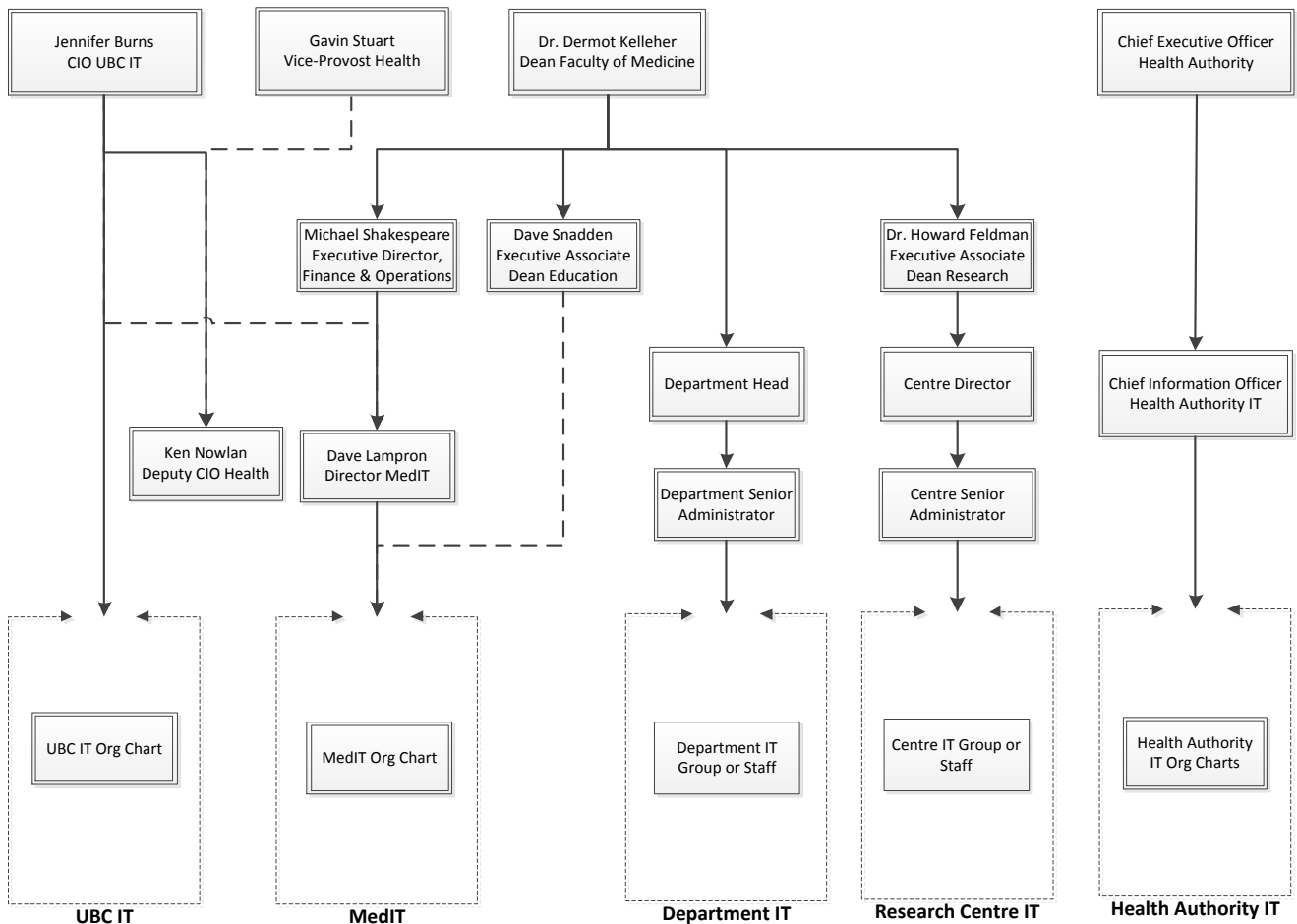


Figure 6: Organization Chart for IT in the FoM

D. EXISTING IT GOVERNANCE STRUCTURES

The following tables and diagrams describe the existing IT governance models for UBC, the FoM, Health Authorities, and FoM-affiliated research institutes.

UNIVERSITY

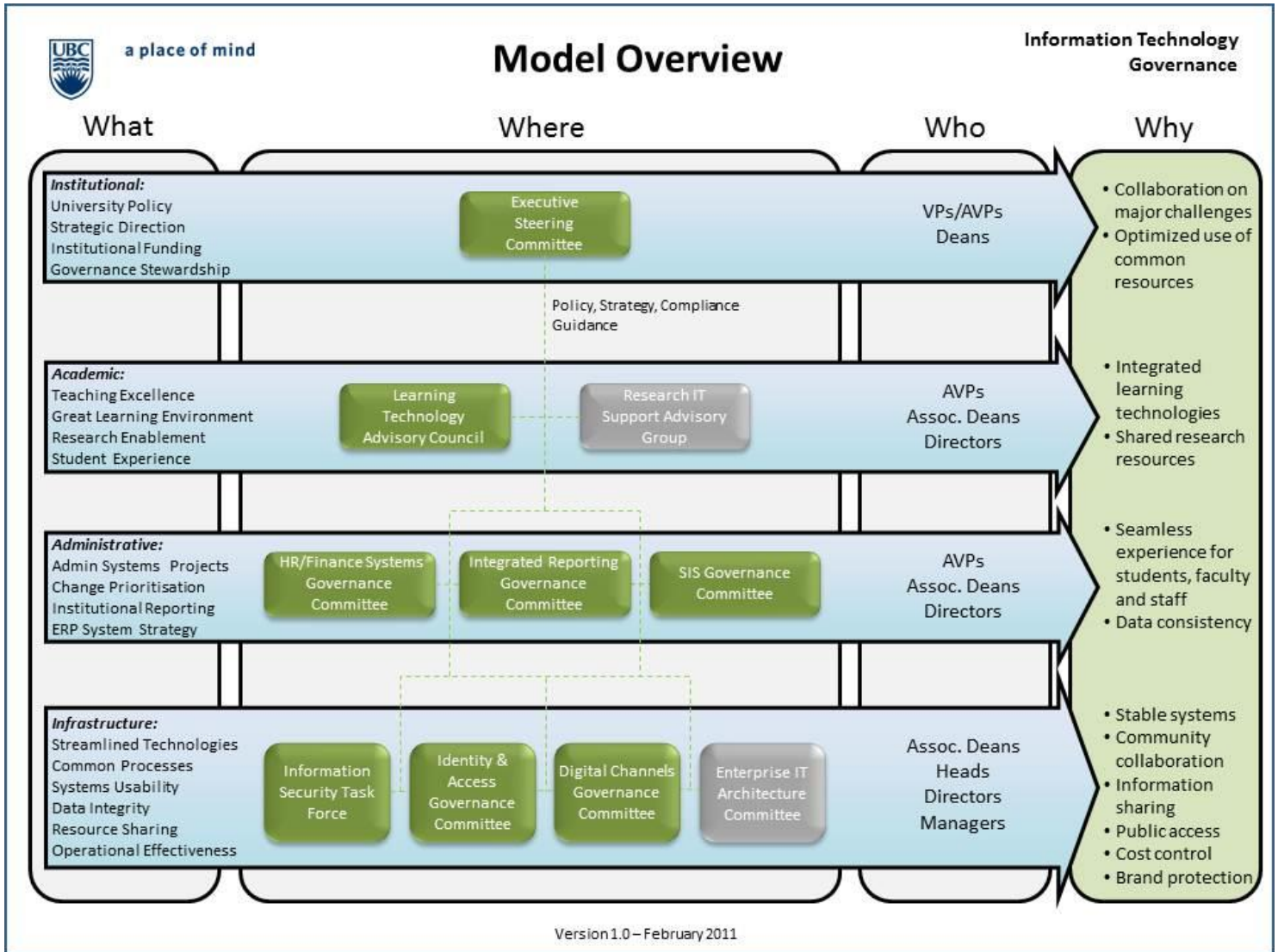


Figure 7: Current IT Governance Structure for IT@ UBC

Table 8: Current Governance Structure for IT in the FoM

Structure	Description
Committee for Administrative Systems (CAS)	The Committee provides strategic direction for faculty-wide administrative systems for the FoM through the approval, prioritization, and funding of initiatives with the perspective of all of the Faculty’s needs.
Educational Administrative Systems Advisory Group (EASAG)	The Advisory Group provides guidance and budget recommendations regarding the use of educational administrative systems for the FoM.
Change Advisory Board (CAB)	The board facilitates change management within MedIT through responses to Request for Change submissions.
MedIT Project Review Working Committee	The committee reviews upcoming and active projects managed in the MedIT Program Management Office.
Future of IT in FoM Project Steering Committee	This committee is newly formed and headed by Mike Allard. The committee provides oversight and guidance for the Future of IT in the FoM initiative.
TEL Alignment Committee (TAC)	The committee provides oversight for Technology-Enabled Learning. See the model below.
Dean’s Executive (DEX)	The Dean’s Executive makes decisions about hiring and is sometimes involved with project approvals for initiatives with significant scope.

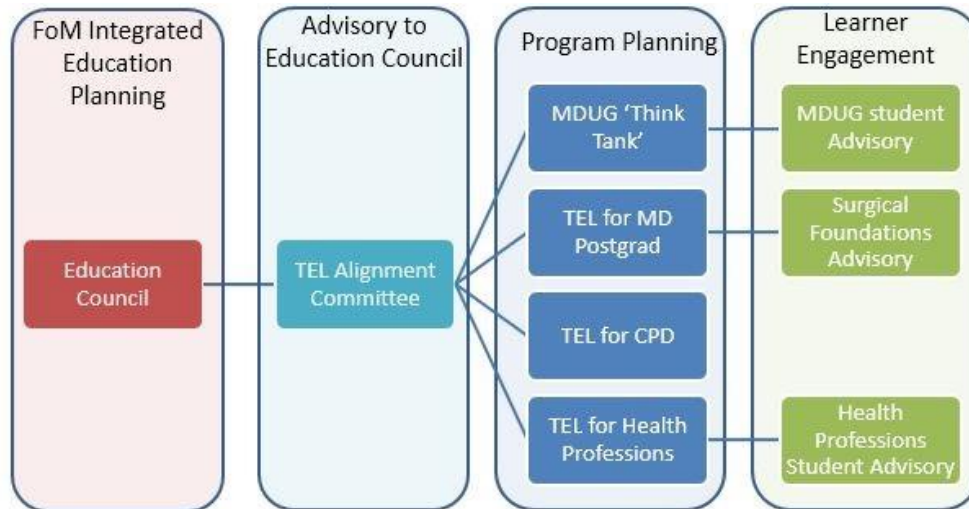


Figure 8: Technology Alignment Committee Governance Model

HEALTH AUTHORITIES

The Health Authorities each have their own governance. The key people and groups are:

- Health Authority Chief Information Officers (CIO)
 - Vancouver Coastal Health Authority (VCHA), Provincial Health Services Authority (PHSA), and Providence Health Care (PHC) have a common CIO.
 - CIOs report to the Health Authority CEO.
 - In the case of VCHA, PHSA, and PHC, the reporting is to the CEO of PHSA.
- Information Management and Information Technology Executive Council
 - This is a council of all of the CIOs, chaired by the Ministry Assistant Deputy Minister for the Information Management and Information Technology branch.
 - The council also includes the Chief Medical Information Officer for each of the Health Authorities.
- Health Shared Services BC (HSSBC)
 - HSSBC handles IT Infrastructure.
 - A Management Board oversees HSSBC; it includes each of the Health Authority CEOs plus the Chief Administrative Officer of the Ministry.

RESEARCH INSTITUTES

- IT Directors in institutes report to the head of the institute (generally).
- All Research IT Directors are on the Research Computing Council, which is chaired by the UBC Associate Director, Research Computing.

E. FINANCIAL ANALYSIS APPROACH

There is no single report or source of information that provides all of the financial information about IT spending in the FoM. Instead, the data were derived from the University's Financial Management System (FMS) and Human Resources Management System (HRMS).

Overall confidence in the data is poor. Many assumptions were made to address gaps in the information. Notably, no data for Health Authority IT costs are directly available and many services provided by UBC IT are not charged back to the Faculty – for example, FMS, HRMS, email, etc. However, although the total costs for IT in the FoM will be underestimated, the quality is sufficient to be able to answer general questions and identify trends related to IT spending.

FACULTY-WIDE IT SPENDING

The Financial Services Team of the FoM extracted data from the FMS by account for all of the Faculty's project grants, based on:

- Accounts used for IT-related expenses based on a review of the UBC Chart of Accounts
- A review of expenses paid to vendors and journal voucher (JV) transfers to ensure relevance
- Transactions completed in the calendar year 2014

Two types of accounts were included in the extract: dedicated IT accounts and “mixed-use” accounts. The mixed-use accounts were reviewed by transaction, and IT transactions were identified based upon the information available in the record. An example of a mixed-use account is the professional fees account, which contains both clinical faculty teaching payments and IT consultant payments.

IT spending that would not be included would be funding paid to another organization to cover operational costs. The project team is aware of these fund transfers, but has not identified specific transactions as of the writing of this report and will work with the Financial Services Team to examine this further.

HR COSTS

HR costs for IT resources were abstracted for each job classification (e.g., Information Systems & Technology, Level C). Some of the staff classified in the Information Systems & Technology job family in UBC’s HRMS may work on specific research projects and may not provide more general IT services. As a result, IT resource costs as reflected in the HRMS may be slightly inflated. However, this is balanced by the fact that many IT staff that provide services to the FoM are employed by other organizations, so they are not in the HRMS at all. More than 25% of the IT staff included in the financial analysis were not listed in the HRMS extract. Some of these staff members were discovered during interviews with units. These staff were included in the estimates. In cases where the classification for a staff member was not available, an educated guess was made based upon the available information.

Because MedIT operational costs and salaries are easily accessible, they served as the basis for extrapolating overhead costs for IT staff and an average salary per classification.

F. PRINCIPLES OF GOOD GOVERNANCE

According to the United Nations²³, good governance follows the principles of:

- **Participation:** All stakeholders have the ability to participate, either directly or through intermediaries.
- **Rule of law:** Decisions follow fair legal frameworks and protect human rights.
- **Transparency:** Decisions follow established rules, and information is available and accessible.
- **Responsiveness:** Stakeholders are served within a reasonable time frame.
- **Consensus oriented:** Differing viewpoints are balanced to reach consensus on the best interests of the community as a whole.
- **Equity and inclusiveness:** All stakeholders feel involved and included.
- **Effectiveness and efficiency:** Processes meet the needs of the community while making the best use of resources at their disposal.
- **Accountability:** Institutions are accountable to the public and stakeholders.

G. GUIDING AND OPERATING PRINCIPLES FOR IT

The following principles were developed by the IT Optimization Committee in 2013 and approved by the Committee of Department Heads and School Directors. Some of the operating principles are not consistent with

²³ <http://www.unescap.org/sites/default/files/good-governance.pdf>

the federated IT structure recommended in this document; the governance groups proposed in this document will be responsible for updating and maintaining these principles to ensure they continue to provide appropriate guidance for the delivery of IT in the FoM.

VISION AND GUIDING PRINCIPLES FOR TECHNOLOGY SUPPORT IN THE UBC FACULTY OF MEDICINE

The guiding principles provide a framework for employing information technology in support of the Faculty of Medicine's goals. The guiding principles are to be viewed in their entirety when facing decisions, and not focused on particular principles in isolation. The principles are designed to provide a balanced view and guide in the context of the decision-making process. In recognition of the complexity and the diversity of needs, being mindful of the resources available and with the ultimate goal of optimizing IT service provision in the FoM to support its academic missions, decisions must carefully weigh the following considerations:

- Innovation vs. stability/reliability
- Diversity of platforms vs. single restricted platforms
- Standardization vs. autonomy/experimentation
- Accessibility vs. security/privacy
- Centralized vs. distributed services
- Proprietary vs. open source

In this context, the Vision and Guiding Principles outlined in this document provide the foundation upon which all planning, policy and standard development, and decisions related to IT services in the FoM will be made.

Support for academic missions IT service strategies are aligned with and driven by the academic missions of the FoM²⁴ and its integral component parts.

Responsiveness IT service strategies are responsive to the needs of faculty, students, and staff and identify excellent end-user support as the major priority.

Openness IT services are managed and operated in an open and transparent manner, providing complete information about funding, services, costs, and performance to the FoM community. IT services are planned with the direct participation of the FoM community in a consensus-driven decision-making process.

Universality IT services are accessible to the entire FoM community. Accessibility is independent of geographical location and crosses disciplinary and organizational boundaries, striking a balance among IT service providers and technology platforms and between centralized and distributed provision of services.

Usability IT services are easy to use and appropriate for the activity. User guidance and training are provided as necessary.

Efficiency IT services are managed and operated as an investment to provide services of value to the entire FoM community.

²⁴ <http://med.ubc.ca/about/our-strategic-direction/>

Suitability IT services are stable, sustainable, safe and secure, complying with all relevant national, provincial, and university laws, regulations, and policies.

Accountability The quality, timeliness, and cost-effectiveness of IT service management and operation are evaluated regularly with the same rigor and transparency as occurs with other programs in the FoM.

Continuous improvement and adaptability IT services and their delivery are continuously improved in a climate of collaborative exploration, development, and experimentation, incorporating innovations and new technologies and applications to meet the changing academic needs of the FoM community.

Security and privacy IT services will meet required standards for security of access and privacy of data.

Policies and standards UBC IT and Med IT develop, adopt, and manage policies and standards as needed to ensure suitability, usability, and efficiency.

Adapted from IT Guiding Principles of the University of California at Berkeley, University of Florida, and University of Buffalo and in accordance with UN ESCAP, *What is good governance?* Available from:

<http://www.unescap.org/sites/default/files/good-governance.pdf>

OPERATING PRINCIPLES FOR TECHNOLOGY SUPPORT IN THE FACULTY OF MEDICINE

The following Operating Principles are designed to achieve the Vision and Guiding Principles. In addition, these operating principles are aimed to provide clarity and balance to the ‘considerations’ outlined above.

Strategy

- The Faculty will take advantage of the ‘consumerization’ of information technology, allowing users to provide and use the devices of their choosing, while refocusing IT investments towards the underlying support systems that are both compatible with the majority of device standards, and comply with Faculty requirements for privacy and security.
- By default, standard solutions/services - including standard software and hardware - will be selected to meet the Faculty’s most generalizable needs; only by exceptions will solutions deviate from standards.
- Procurement will take advantage of the purchasing power of the Faculty, UBC, and the Province. Unless there are special circumstances that merit a deviation, IT-related purchasing for the Faculty will be handled by its central IT group.
- There will be a focus on continuous service (and process) improvement.

Governance

- The governance model will reflect the distributed nature of the Faculty. That is, the model will ensure that governance is not Point Grey-centric but reflects the multiple locations where the Faculty operates.
- There will be a focus on fiscal responsibility and managing IT services as efficiently as possible.
- The Faculty will manage IT support funds according to an integrated/distributed model.
- The Faculty will create mechanisms for measuring the quality and reliability of IT services to ensure that service provision continues to provide the Faculty with the best value for its investment.

- Cost tracking and recovery for IT services will follow a simple administrative model that balances the overhead of the administration with the benefit of providing the cost tracking and recovery.
- The Faculty will create mechanisms to enable innovation. Innovation, in this context, means ideas and relatively small investments in new hardware, software, or procedures that are outside of the Faculty standards to allow the innovator to explore a new idea. Innovation will be bounded by criteria to ensure stewardship of the Faculty's funds and compliance with privacy and security requirements.

Organization

- IT will be a virtually integrated/distributed organization within the Faculty – that is, it will operate as a centralized Faculty IT group, but as is currently the case, employees will be located in all key Faculty locations.
- Build capacity and reinforce continuity in providing IT services regardless of illness or vacation, and remove the burden of managing the local IT personnel from the departments.

Services Provided

- Centrally accessible IT services to all Faculty students, faculty, and staff.
- Where feasible, services will be provided by a centralized group for the Faculty. In addition to other benefits, this helps ensure that Faculty standards for security and privacy are followed.
- Where a service has been deemed by the Faculty governance body to be required that is not part of the standard Service Catalogue, the Faculty IT group will review the request to determine if the service should be added to the catalogue or provided through other means.
- The Faculty will make clear what IT services it is best placed to offer.
- The Faculty IT group will provide liaison services for services that are best offered by other providers.