

Provincial Laboratory Information Solution  
(PLIS) and  
Interoperable Electronic Health Record (iEHR)

Project Summary

**August 2007**

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## 1. Executive Summary

The purpose of this report is to provide the public and interested stakeholders with a summary of final outcomes and benefits to be achieved from the procurement for the Provincial Laboratory Information Solution (PLIS) and the Interoperable Electronic Health Record (iEHR) projects, two key projects within the Ministry of Health's eHealth program.

One of the goals of the Ministry of Health is to ensure a sustainable, affordable public healthcare system for British Columbia. Toward that end, strategic investments in information management and technology, such as the PLIS and iEHR projects, are needed to improve patient care through the integration and delivery of clinical information. The PLIS and iEHR projects will deliver laboratory information to authorized caregivers and put in place the infrastructure necessary to provide seamless, secure and timely sharing of health information.

The PLIS and iEHR projects were initiated in late 2005 and represent key foundational projects in the Province's eHealth Strategic Framework, published in 2005 ([http://www.healthservices.gov.bc.ca/cpa/publications/ehealth\\_framework.pdf](http://www.healthservices.gov.bc.ca/cpa/publications/ehealth_framework.pdf)).

The PLIS project will provide consolidated diagnostic laboratory test results to authorized caregivers, across British Columbia. PLIS is being designed in collaboration with laboratory specialists, clinical experts and technology partners. PLIS will be a software application that supports appropriate test utilization, enhances clinical workflows, quality and utilization of laboratory services, help to support administration and management decision making and improvements in patient safety and quality of care.

The iEHR project will help to provide a provincial capability to facilitate the seamless, secure and timely sharing of accurate health information. Authorized healthcare professionals and their support staff across the Province will have access to clinical treatment information (e.g. laboratory results, drug prescriptions etc.) about their patients irrespective of where that treatment occurred within the Province.

System development, implementation and operations on both projects are to be carried out by the private sector.

On April 13, 2007, the Province of British Columbia as represented by the Ministry of Health (Province) entered into a long-term relationship with Sun Microsystems (B.C.) Inc. to design, build implement and operate two systems, the PLIS system and the iEHR system and to deliver services associated thereto. In providing these services, Sun is supported by subcontractors,

FCG CSI Inc. (also known as First Consulting Group), MedPlus, Inc. (a subsidiary of Quest Diagnostics), CGI Information Systems and Management Consulting, Inc. and TELUS Communications Company.

The value of the total contract to deliver both the PLIS and iEHR systems and operations support services is approximately \$149M. This encompasses a 20 month, design, build and implement strategy followed by a service contract to the 10 year mark.

### **Benefits to Healthcare in B.C.**

Healthcare providers and policy makers in B.C. are seeking to adapt the healthcare delivery and services model wherever possible to enable patient-centric healthcare.

Implementation of the iEHR will deliver value as the system supports enablement of a patient-centric healthcare environment. The iEHR system supports:

- More effective service delivery across the continuum of care by facilitating the seamless, secure and timely sharing of accurate health information wherever health care is delivered to promote efficient coordinated health care; and
- Improved healthcare planning and stewardship, based on reliable accurate and consistent healthcare information.

Implementing PLIS will improve patient care through:

- Improved access to laboratory results that will better inform diagnosis and treatment resulting in fewer treatment delays and unnecessary duplicate testing; and
- Improved availability of lab information across the Province that will aid chronic disease management.

## **2. Project Background, Rationale and Scope**

### **Background**

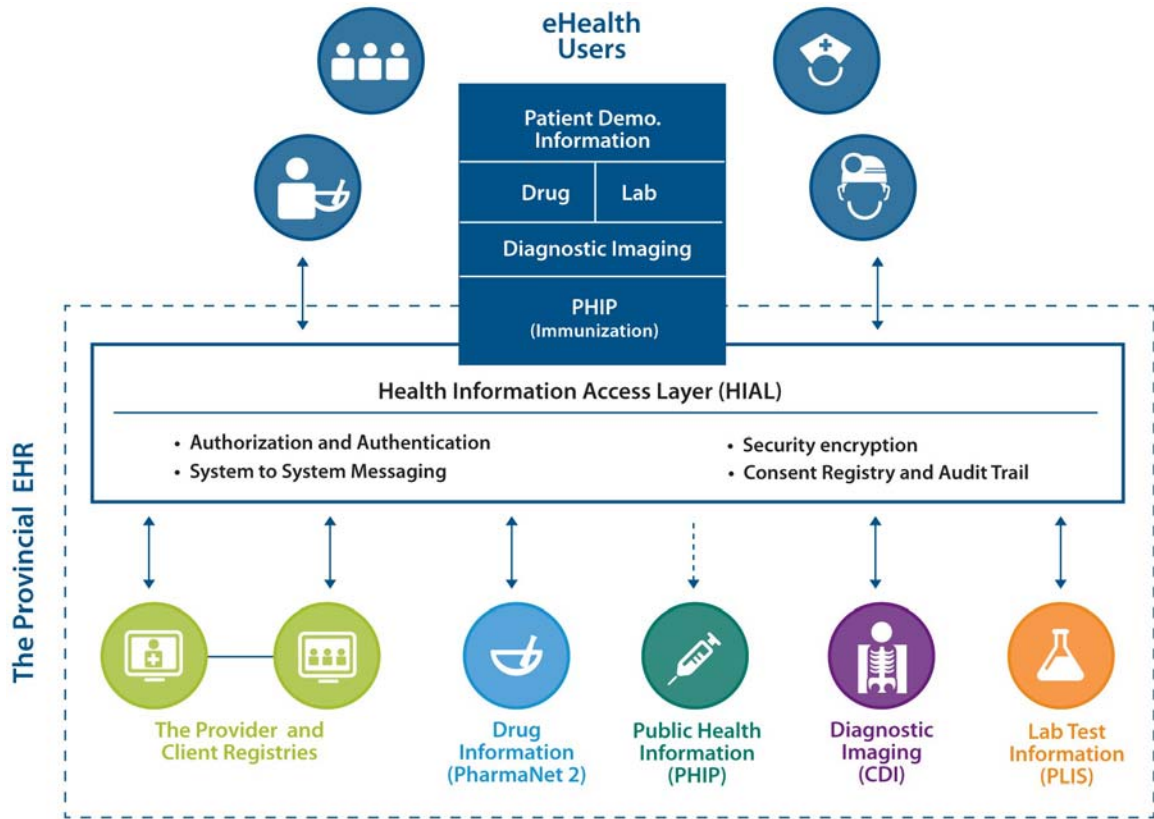
The Ministry of Health's decision to invest in eHealth and integration of existing healthcare information technology systems was based on:

- Recommendations from the Premier's Technology Council and the Romanow Commission that governments invest in eHealth;
- Financial support from Canada Health Infoway to implement an interoperable Electronic Health Record and Provincial Laboratory Information Solution;

- Acknowledgment within the B.C. healthcare leadership that the long-term sustainability of the healthcare system would be positively influenced by the growth of electronic healthcare;
- A laboratory services review was undertaken by the Provincial Laboratory Coordinating Office in 2003. In May-June 2005, the Ministry of Health conducted a survey of Health Authorities on their laboratory information systems. The results of these two surveys identified 27 different laboratory information systems used within British Columbia and suggested a lack of integration and automation between the different laboratory information systems. This makes it difficult to aggregate information on laboratory services and this lack of integration affects the clinician's ability to make effective clinical decisions and optimally manage patient care. Often, laboratory tests are duplicated unnecessarily because a clinician is unable to view a patient's historical laboratory test results;

PLIS and iEHR are seen as foundation stones of eHealth that will help to effectively address these issues.

A provincial eHealth Steering Committee was established to accelerate the development and implementation of eHealth solutions in the province. The eHealth Steering Committee developed and approved the eHealth Strategic Framework and initiated the eHealth program within the Ministry of Health to deliver the eHealth project portfolio. The following diagram illustrates a high level overview of the eHealth technology architecture.



### Business Rationale and Project Objectives

In developing the procurement and business approach for the PLIS and iEHR projects, the Ministry of Health made a strategic decision to source the information technology, systems development and integration services from the private sector in order to allow the Ministry of Health to focus on its role as a steward of healthcare in B.C. and allow the Health Authorities to focus on their role in the delivery of healthcare to citizens.

The procurement of the iEHR System and PLIS System was conducted jointly. PLIS will be the first source of clinical data to be accessible through the iEHR System.

The objectives of the PLIS project are to build and integrate the needed infrastructure required for laboratory clinical information sharing in British Columbia. The clinical objectives for PLIS are:

- Improve access to clinical laboratory information at the point of service anywhere in the province;

- Support care providers with integrated clinical information to facilitate effective clinical decision making;
- Improve quality and safety of patient care delivery with timely and complete clinical information;
- Improve and support disease management;
- Improve quality and utilization of laboratory services in the province;
- Support administration and management decision making; and
- Support goals of laboratory transformation in the Province.

The objectives of the iEHR project are to build and implement a common infrastructure that will help to enforce Ministry of Health privacy policy and delivery of messages within the eHealth environment.

## **Scope of Services**

### **PLIS Project**

The scope of the services in the contract for the iEHR project and PLIS project is comprised of the following services:

1. Design, Build and Implementation Services:
  - Software installation and configuration services;
  - Canadian localizations of commercial-off-the-shelf software (COTS) product<sup>1</sup>;
  - Electronic laboratory test results distribution services;
  - Results viewing services through a laboratory results viewing facility;
  - Laboratory test name standardization services in accordance with the B.C. and pan-Canadian standards; and
  - System testing and user acceptance services.
2. Integration Services
  - Development of interfaces to the public and private laboratory systems to supply laboratory data to the PLIS System;
  - Integration of the laboratory 'view' into the iEHR viewer services; and
  - Integrate with the iEHR infrastructure to leverage common eHealth security and messaging.

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<sup>1</sup> The software solution is based among other products, on Care360 a COTS (commercial-off-the-shelf) product provided by MedPlus.

### 3. Implementation Services

- Knowledge transfer and training for provincial personnel to provide systems administration and tier 1 and tier 2 helpdesk services;
- Deployment of the laboratory results viewer to an initial adoption community of three laboratories and approximately twenty five community physicians; and
- Managed operations to run the PLIS application (24/7).

### **iEHR Project**

The scope of the services in the contract with Sun is comprised of the following services:

#### 1. Design, Build and Implementation Services:

- System design;
- Application build and configuration; and
- Application testing and user acceptance.

#### 2. Integration Services

- Development of an interface template to support the future connection of the iEHR System with other provincial health systems to provide an integrated view of patient care; and
- Development of interfaces to Provincial registry systems to confirm the identification and authorization of healthcare providers and locations.

#### 3. Support Services:

- Managed operations to run the iEHR application (24/7);
- Training support for provincial personnel to enable provincial staff to provide systems administration and Tier 1 helpdesk services; and
- Project management support for the design, build and implementation stages within the contract.

## **3. Competitive Selection Process**

In traditional public sector procurement processes the Province decides on a solution to a problem, provides proponents with detailed specifications, via a Request for Proposals, and proponents must bid and build their proposals within those pre-determined parameters with no further collaboration with the Province. This approach does not generally allow vendors to propose alternative solutions that achieve the desired outcomes in potentially more effective ways, nor does it allow the vendors and Provincial staff to jointly tailor a creative solution.

The Ministry of Health decided to use the Joint Solution Procurement (JSP) approach. This approach is used by the Province for complex information



technology and business process transformation projects that often result in large scale, long-term agreements with the private sector.

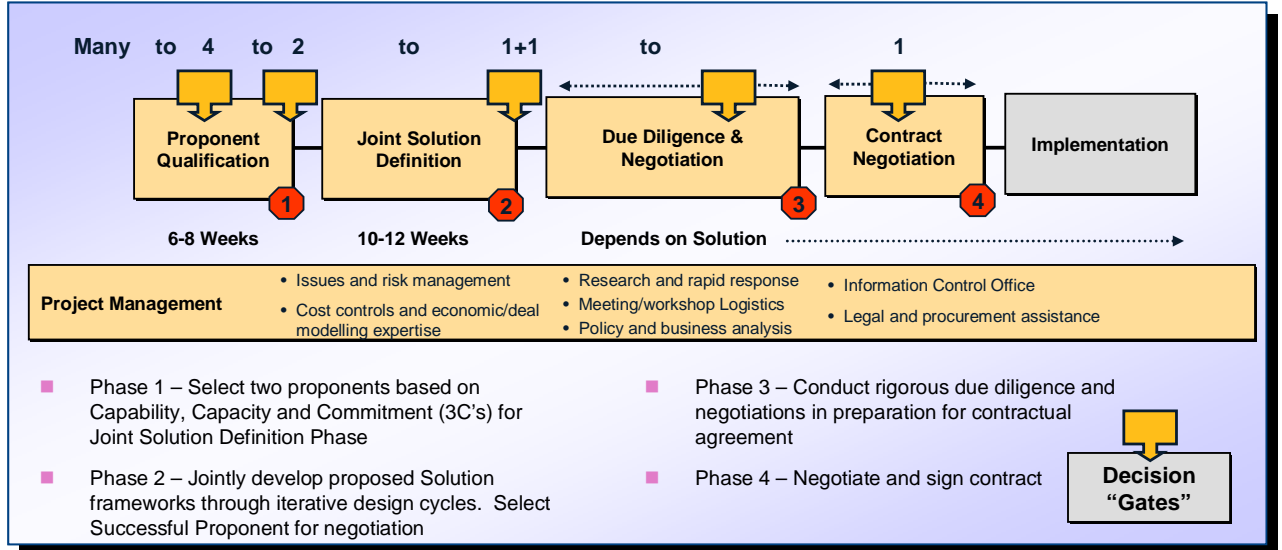
The Ministry's intention was to select a service provider that would have an innovative and tailored solution, sustainable over a contract term of ten years.

### Joint Solution Procurement Process

The Joint Solution Procurement process (JSP process) was selected as the preferred alternative to the traditional procurement approach. The JSP process allows both the private sector and government staff the opportunity to apply their collective knowledge and expertise to evaluate and design a wider range of solutions.

In the first phase of the process, proponents qualified to participate by demonstrating their capability (experience and track record in delivering similar services), capacity (financial and human capital available to sustain an operation of the size and scope of the project) and commitment (to the process and the achievement of the objectives of the project). The JSP process is illustrated below:

*Figure 1: The Joint Solution Procurement Process*



***Phase 1 – Joint Solution Procurement Qualification (February – May 2006)***

The Joint Solution Request for Proposals was released on February 1, 2006. Six companies responded. Four proponents were short listed on the basis of their initial written responses.

Table 1: Respondents to the Joint Solution Request for Proposals - SATP-162

<b>Submitted Response</b>	<b>Short Listed</b>	<b>JSD Phase Participant</b>
Accenture	Yes	Yes
CGI	Yes	No
Bearing Point	Yes	No
Sun Microsystems, Canada	Yes	Yes
Medicity	No	No
Bell Canada	No	No

The four short-listed proponents were provided with summary information about the current business processes, technology and system requirements. They then prepared high level, conceptual presentations demonstrating their proposed solution to achieve the desired outcomes. On the basis of those conceptual solutions, an evaluation committee selected two preferred proponents (Sun Microsystems of Canada Inc. was one of them) to work through the Joint Solution Definition Phase (JSD Phase).

***Phase 2: Joint Solution Definition Phase (June – August 2006)***

During this phase the two proponents had access to more detailed information and refined and elaborated on their initial solutions in close collaboration with the Province. All participants in this process were bound by confidentiality agreements, and were not provided access to any sensitive personal information.

A panel that included senior staff of the Ministry of Health and Health Authorities, as well as external consultants with expertise in privacy, technology, finance and structuring complex agreements, evaluated the final presentations. Initial evaluation criteria in the qualification phase measured the capacity, capability and commitment of the proponent. Proponents' final solutions were evaluated on the quality and comprehensiveness of the following subjects:

- Clinical and business value and scope;
- Technology architecture, implementation and security;

- Ongoing operations;
- Governance and relationship;
- Stakeholder engagement and adoption;
- Policy and compliance including privacy;
- Risk; and
- Deal structure and economic model.

### ***Phase 3: Due Diligence & Contract Negotiation (September 2006 – January 2007)***

The JSD Phase ended in September 2006, and Sun Microsystems of Canada Inc. was selected as the successful proponent to proceed to the Due Diligence and Contract Negotiation Phase. The due diligence performed on Sun Microsystems of Canada Inc. included site visits and customer reference checks along with detailed validation of the planning assumptions which were used to build the final solution presentation.

### ***Phase 4: Finalise Deal (February – April 2007)***

The procurement process was designed to be collaborative and harness the creativity of the both the Province and the private sector. The objective was to arrive at a business solution that delivers the optimal, efficient and most cost-effective solution for the Province.

The contract with Sun Microsystems (B.C.) Inc. was signed on April 13, 2007.

### **Changes to Project**

Service Provider Consortia:

- Early on in the Joint Solution Definition, Sun requested that it be permitted to bring in additional subcontractors, namely CGI to propose managed operations services and during solution definition Booz Allen Hamilton was brought in to propose strategic advisory services; and
- During due diligence, Sun requested that TELUS be added as a subcontractor for data centre facilities.

Scope of the Opportunity:

- The agreement with Sun includes the core PLIS scope as well as the potential iEHR scope as described in the Joint Solution Request for Proposal. It also includes the potential to leverage the solution beyond the Ministry of Health as described in the Joint Solution Request for Proposal; and
- The Ministry of Health and Health Authorities will provide much of the organizational change management services required to implement and deploy the PLIS and iEHR systems.

## 4. The Final Agreement

### Profile of the Selected Service Provider

Sun Microsystems (B.C.) Inc. is a wholly owned subsidiary of Sun Microsystems of Canada Inc., which is a wholly owned subsidiary of Sun Microsystems, Inc. As a publicly traded company founded in 1982 Sun Microsystems is a global supplier of network computing solutions. Sun Microsystems employs over 36,000 employees in 100 countries worldwide, with revenues of over \$13B for 2006. For more information visit [www.sun.com](http://www.sun.com)

Sun Microsystems of Canada Inc. was selected because of the overall strength of the final solution proposed to the Province. The solution emphasized clinical laboratory service transformation based on the proven MedPlus clinical application combined with strength in systems integration and systems development capability provided by Sun and its integration partners.

### Key Terms of the Agreement

<p><b>Legal and Commercial Structure</b></p>	<ul style="list-style-type: none"> <li>▪ Sun Microsystems of (B.C.) Inc. is a wholly owned subsidiary of Sun Microsystems of Canada Inc. which is a wholly owned subsidiary of Sun Microsystems, Inc. Sun Microsystems of (B.C.) Inc. is registered to conduct business in British Columbia.</li> <li>▪ Sun Microsystems of (B.C.) Inc., as the service provider, (Sun) has been contracted to deliver the services.</li> <li>▪ Sun will base the managed operations centre in the greater Vancouver area. The system applications and managed operations will be located within a TELUS data centre facility.</li> <li>▪ Additional subcontractors include:             <ul style="list-style-type: none"> <li>○ First Consulting Group is a professional services firm focused on healthcare and technology based in California, will provide software and consulting services to implement the PLIS and iEHR systems.</li> <li>○ MedPlus is the healthcare information technology subsidiary of Quest Diagnostics and will provide the application software for the PLIS System.</li> <li>○ TELUS is the largest telecommunications company in Western Canada and will provide the data centre and managed operation facilities for the PLIS and iEHR systems.</li> <li>○ CGI is an application maintenance and support service provider and will provide that service to the PLIS and iEHR systems.</li> </ul> </li> </ul>
<p><b>Term</b></p>	<ul style="list-style-type: none"> <li>▪ Term of 10 years with the option for renewal for one year, at the Province's sole discretion in order to conclude a procurement to select a new service provider or repatriate the service.</li> </ul>

<b>Labour</b>	<ul style="list-style-type: none"> <li>▪ No staff will be transferred to Sun.</li> </ul>
<b>Pricing</b>	<ul style="list-style-type: none"> <li>▪ Pricing is based on a fixed price with optional services available at the Province's discretion.</li> <li>▪ Total contract value of approximately \$149M over ten years.</li> </ul>
<b>Cost-Reduction Opportunities</b>	<ul style="list-style-type: none"> <li>▪ Almost \$47M of capital funding for the iEHR and PLIS projects is being provided by Canada Health Infoway.</li> </ul>
<b>Protection of Service Levels</b>	<ul style="list-style-type: none"> <li>▪ Service levels have been established. Service levels will be monitored, reviewed and evaluated on a regular basis.</li> <li>▪ Remedies are defined for under-achievement and service credits for overachievement.</li> <li>▪ Service level and price benchmarking using an independent, third party.</li> </ul>
<b>Termination</b>	<p>Termination provision includes:</p> <ul style="list-style-type: none"> <li>▪ Termination at expiry;</li> <li>▪ Termination for cause;</li> <li>▪ Termination for convenience;</li> <li>▪ No fault termination; and</li> <li>▪ Sun will provide termination assistance where requested by the Province.</li> </ul>
<b>Governance</b>	<ul style="list-style-type: none"> <li>▪ Joint Executive Steering Committee and a Joint Operations Committee comprising members of Sun and the Ministry of Health guide the implementation of the projects, manage the relationship and contract, and resolve issues.</li> <li>▪ A Joint Program Management Office will oversee implementation the design, development and implementation period.</li> <li>▪ A Contract Management Office within the Ministry of Health will monitor service levels and administer this and other Ministry outsourced contracts.</li> </ul>
<b>Financial Controls</b>	<ul style="list-style-type: none"> <li>▪ The parties will review the pricing in Year 5 and may agree to a price reset</li> <li>▪ Liability and indemnity provisions are in place, including remedies for privacy breach.</li> </ul>
<b>Audit</b>	<ul style="list-style-type: none"> <li>▪ The Province has secured transparency of financials including reasonable audit and investigation rights.</li> <li>▪ Security audit of Sun's privacy and security processes.</li> <li>▪ Sun agrees to permit the Province to have access for operational audit and inspection purposes.</li> </ul>
<b>Intellectual Property</b>	<ul style="list-style-type: none"> <li>▪ Any intellectual property developed by the Province remains with the Province. will have the right to use any such intellectual property for the term of the contract.</li> <li>▪ Any intellectual property developed by as part of the Services will be available to the Province at end of contract term for use in continuing services.</li> </ul>

## Privacy & Security

The protection of personal information of all individuals, whether it be in their role as citizen or employee, is of critical importance to government. Sun has in place, and will maintain, policies and procedures specific to both privacy and security as it relates to their obligations with this contract and in accordance with British Columbia's privacy laws and regulations.

The contract with Sun protects privacy and security by:

- Ensuring that Sun complies with the requirements of the *Freedom of Information and Protection of Privacy Act*;
- Ensuring that all key personal and operational data remains in Canada (prime data location in Vancouver with disaster recovery from a Calgary-based data centre);
- Substantial financial remedies and the right to terminate the contract for unauthorized disclosure of personal information including under the *USA Patriot Act*;
- Requiring that Sun notifies the Province promptly in any situation where it receives an order to disclose personal information, whether that request is made by an organization inside or outside of Canada;
- Requiring that Sun notifies the Province promptly in any situation where there has been an unauthorized disclosure of personal information;
- Contracting provisions that prevent Sun from adding or changing key subcontractors without the Province's approval;
- Any subcontractor having access to or custody of personal information is subject to contractual provisions for privacy protection of the Province's data;
- Explicit education and training for Sun staff on privacy and security will be provided by Sun and will be renewed on a regular basis; and
- Conducting Privacy Impact Assessments (and implementing recommendations) prior to contract and when any material changes that impact personal information for the term of the contract.

## Financial Summary

The scope of services for the PLIS and iEHR described in Section 2 will be delivered by Sun to the Province based on a fixed price model, with payments made only once the Province has accepted completed deliverables. In addition to the services necessary to design, build, implement and deploy PLIS and iEHR, the Province will also purchase the necessary servers and storage hardware from Sun. Once the PLIS and iEHR systems are operational, Sun will be responsible for the managed operations of the systems for the term of the contract with specified service level agreements in place. A financial summary is provided in the table below.

Provincial Laboratory Information Solution (PLIS) &  
Interoperable Electronic Health Record (iEHR)

Project Summary

<b>Solution Components</b>	<b>Pricing Model</b>	<b>Total (\$M)</b>
<b>PLIS</b>		
<ul style="list-style-type: none"> <li>• System Configuration &amp; Installation</li> <li>• Integration Services</li> <li>• Implementation Services</li> </ul>	Fixed Price paid to Sun for Province accepted deliverables	\$11.9M
<ul style="list-style-type: none"> <li>• Hardware</li> </ul>	Fixed price based on Province business requirements and Sun technical design	\$3.3M
<ul style="list-style-type: none"> <li>• Software</li> </ul>	Fixed price	\$11.3M
<ul style="list-style-type: none"> <li>• Managed Operations</li> </ul>	Fixed Price paid monthly to Sun for Province defined services and service levels	\$39.8M
<b>PLIS TOTAL</b>		<b>\$66.3M</b>
<b>iEHR</b>		
<ul style="list-style-type: none"> <li>• Design, Build and Implementation</li> <li>• Integration Services</li> <li>• Support Services</li> </ul>	Fixed Price paid to Sun for Province accepted deliverables	\$16.9M
<ul style="list-style-type: none"> <li>• Hardware</li> </ul>	Fixed price based on Province business requirements and Sun technical design	\$3.8M
<ul style="list-style-type: none"> <li>• Software</li> </ul>	Fixed Price	\$9.4M
<ul style="list-style-type: none"> <li>• Managed Operations</li> </ul>	Fixed Price paid monthly to Sun for Province defined services and service levels	\$52.4M
<b>iEHR TOTAL</b>		<b>\$82.5M</b>
<b>Total Capital Costs</b>		<b>\$56.6M</b>
<b>Total Operating Costs</b>		<b>\$92.2M</b>
<b>CONTRACT TOTAL OVER 10 YEARS</b>		<b>\$148.8M</b>

### **Payment Mechanism**

Sun will invoice the Province for deliverables based on completed and signed-off deliverables. Sun will invoice the Province for ongoing managed operations services on a monthly basis.

### **Expected Accounting Treatment / Financial Reporting**

All accounting, record keeping and book keeping of Sun will be performed and carried out consistent with Canadian Generally Accepted Accounting Principles (GAAP).

### **Risk Allocation Summary**

The types of risks transferred to Sun include:

- System design for the iEHR and PLIS Systems;
- Technical development and implementation of the iEHR and PLIS Systems;
- Operational support of the iEHR and PLIS Systems;
- Business continuity services for the iEHR and PLIS Systems;
- Financial uncertainty on the cost of services over time;
- Service quality and service level performance; and
- Security and privacy from the design, development and operation of the iEHR and PLIS Systems;

The types of risks retained by the Province include:

- Business relationship with health authorities and private laboratory service providers;
- Management of stakeholder group relationships;
- Organizational change management;
- Strategic policy development and stewardship of health information;
- Definition of business requirements for both systems; and
- End user adoption of the resulting systems.

The types of risks shared by the Province and Sun include:

- Contractual working relationship.

## **5. Implementation and Contract Governance**

### **Design, Build and Initial Adoption**

All managed operations and all testing which utilizes private data must happen in Canada at a number of locations including Vancouver, Calgary, Regina and Toronto. Development work will occur in Vancouver and a number of locations in the US.

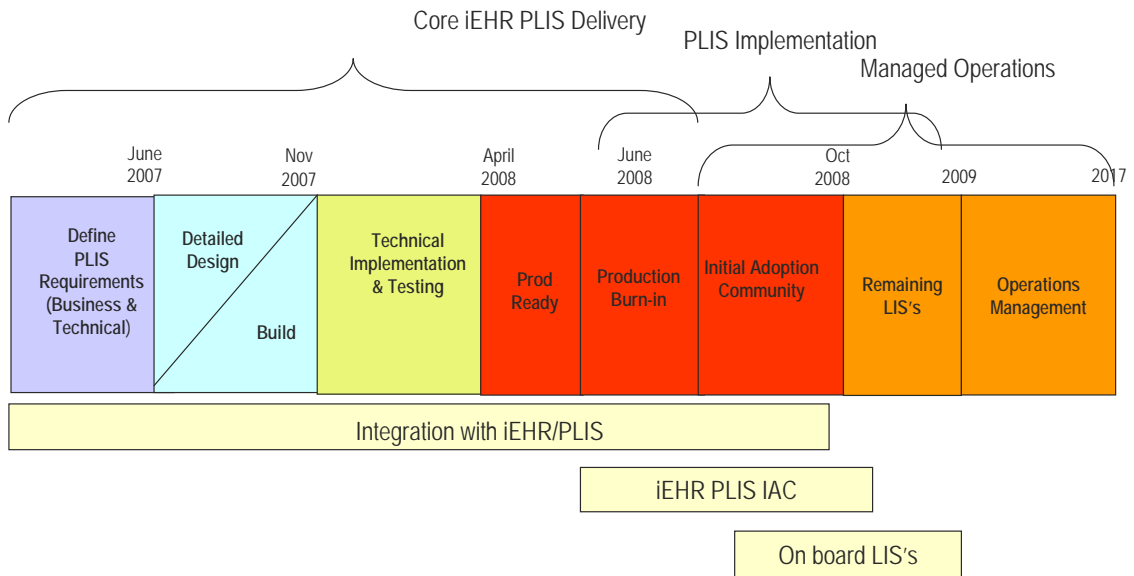


The implementation effort for the iEHR and PLIS projects will converge during the systems testing phase with the projects jointly implementing the systems within the healthcare environment in B.C.

PLIS will be deployed to an initial adoption community. The initial adoption community may include up to three laboratory information systems (public and private), 25 community physician offices, one health authority with up to 100 individual authorized users, and a private lab consisting of pathologists and clinicians.

This initial implementation experience will be used by the Province to determine the approach and schedule for the deployment of the PLIS system to the rest of the laboratory community across the Province. It will also shape the approach for connecting other healthcare information systems to the iEHR.

## iEHR PLIS Timelines



### Governance

Governance and alliance management responsibilities rest with the Ministry of Health. A three tier structure will be established for project governance which will be headed by the Deputy Minister of Health and the President of Sun Microsystems of Canada Inc.

- A Joint Executive Committee and a Joint Operations Committee will oversee the implementation of the projects and will deal with progress and issue management.

## Appendix 1 – Privacy Protection

Contract Provisions/ Mitigation Strategy	Sun Contract
Sun will comply with provincial policies and procedures regarding privacy and security as applicable to the services.	✓
Privacy and security obligations flow to Sun's subcontractors as applicable to the services.	✓
Strong technology security measures will be implemented, including firewalls, encryption and physical security.	✓
Strict records management and retention policies will be implemented.	✓
Privacy Impact Assessments will be required prior to any systems change.	✓
Contract includes termination rights in the event of certain disclosures of personal information or privacy breach.	✓
Personnel acknowledgements include the requirement for notification in the event that a Sun employee or subcontractor employee becomes aware of any potential disclosure.	✓
Data storage and access, including remote access, will be only in Canada, and can only be changed with the Province's express consent.	✓
The Province has the right to audit data movement as part of its general audit provisions.	✓

## Appendix 2 – Risk Allocation

### A: Material Risks Transferred to the Private Sector

Risk Category & Description	Mitigation (Contractual Provisions)
<b>Business Risk</b>	
Sun does not achieve service levels in contract	<ul style="list-style-type: none"> <li>• Financial consequences.</li> <li>• Chronic failure triggers breach conditions and termination for cause.</li> </ul>
Privacy or security breach	<ul style="list-style-type: none"> <li>• Commitment to government imposed standards.</li> <li>• Audit provisions.</li> <li>• Breach triggers termination for cause.</li> </ul>
Fraud or negligence	<ul style="list-style-type: none"> <li>• Audit provisions.</li> <li>• Breach may trigger termination for cause.</li> </ul>
Failure of Sun or sub-contractors	<ul style="list-style-type: none"> <li>• Failure of Sun may be considered a material breach of contract leading to termination.</li> <li>• Sun is responsible for all services delivered by sub-contractors.</li> </ul>
Business Continuity and Disaster Recovery	<ul style="list-style-type: none"> <li>• Sun's Business Continuity Plan.</li> </ul>
<b>Financial Uncertainty</b>	
Contract Cost Variability	<ul style="list-style-type: none"> <li>• Services under contract to be delivered on a fixed-price basis.</li> <li>• Price adjustments based on broad 'collars' reflecting the volumes of transactions run through the PLIS and iEHR Systems over the contract term.</li> <li>• Extension of the iEHR to other government ministries and the broader public sector will deliver lower overall costs to Ministry of Health.</li> </ul>
Cost Overruns	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Reporting requirements.</li> <li>• Excessive profit protection.</li> </ul>
<b>Service Quality</b>	
Service Level Performance	<ul style="list-style-type: none"> <li>• Service level performance incentives and remedies.</li> <li>• Reporting requirements.</li> <li>• Chronic failure triggers breach conditions and termination for cause.</li> </ul>
Flexibility & Responsiveness	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Service level incentives and financial consequences.</li> <li>• Reporting requirements.</li> </ul>

Risk Category & Description	Mitigation (Contractual Provisions)
Technical Obsolescence	<ul style="list-style-type: none"> <li>• Performance based Service Level Agreements</li> <li>• Governance structure.</li> </ul>

## B: Shared Material Risks

Risk Category & Description	Mitigation (Contractual Provisions)
<b>Business Risk</b>	
Force Majeure	<ul style="list-style-type: none"> <li>• Sun's Business Continuity Plan.</li> <li>• Province may obtain replacement services from and alternate service provider.</li> </ul>
<b>Economic Risk</b>	
Inflation / Cost of Living Allowance (COLA)	<ul style="list-style-type: none"> <li>• Both parties are tied to a mutually agreed, independent index.</li> </ul>
Termination by Province for convenience	<ul style="list-style-type: none"> <li>• Early termination fees apply.</li> </ul>
<b>Sponsorship/Management</b>	
Risk of change in support for project within government or Sun	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Service level incentives and financial consequences.</li> <li>• Reporting requirements.</li> </ul>
<b>Organizational Change</b>	
Transformation risk: realigning organizational processes and work practices to accommodate the use of the PLIS and iEHR Systems	PLIS and iEHR will look to Sun and the Province's integrated approach to change management for the tools, techniques and support necessary for effective organizational change.
<b>Quality Management</b>	
Risk that the ministry will be unable to monitor and measure deliverables	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Reporting requirements.</li> </ul>
Transaction volumes: Underestimated Ramp up years too slow Growth rate exceeds 5%	<ul style="list-style-type: none"> <li>• Managed Operations Services allows for re-evaluation</li> <li>• Governance structure</li> </ul>

### C: Material Risks Retained by the Province

Risk Category & Description	Mitigation
<b>Business Risk</b>	
Keeping Health Authorities 'in the deal' over the term of the contract	<ul style="list-style-type: none"> <li>• Provincial e-Health program, schedule and costs has been endorsed by the provincial CEO's Council and individually by each Health Authority.</li> <li>• Governance structure.</li> <li>• Service level incentives and remedies.</li> <li>• Reporting requirements.</li> </ul>
Major/sustained volume growth or shrinkage driven by government activity or policy change	<ul style="list-style-type: none"> <li>• Governance structure and annual business planning cycle with joint planning;</li> <li>• Pricing schedule allows for volume changes.</li> </ul>
Sun does not achieve service levels in contract	<ul style="list-style-type: none"> <li>• Service level performance incentives and financial consequences;</li> <li>• Reporting requirements;</li> <li>• Chronic failure triggers breach conditions and termination for cause.</li> </ul>
Change in law or government policy requiring changes in scope, systems or business processes	<ul style="list-style-type: none"> <li>• Governance structure, change order process and annual business planning cycle with joint planning.</li> </ul>
Failure of Sun or sub-contractors	<ul style="list-style-type: none"> <li>• Failure of Sun may be considered a material breach of contract leading to termination.</li> <li>• Sun is responsible for all services delivered by subcontractors.</li> </ul>
Sale or change in control of Sun	<ul style="list-style-type: none"> <li>• Subject to Province approval with specific exceptions.</li> </ul>
<b>Project Complexity</b>	
Risk that scope changes will increase net cost to Ministry of Health	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Reporting requirements.</li> </ul>
Risks associated with balancing multiple priorities, numerous concurrent eHealth projects, new business processes complex technology implementation, coordinating multiple organizational units	<ul style="list-style-type: none"> <li>• Governance structure.</li> <li>• Reporting requirements.</li> <li>• Simplified model for support services.</li> <li>• Service level performance incentives and remedies.</li> </ul>

**END OF DOCUMENT**