

Southwestern Ontario (SWO) Imaging Needs Assessment Project

FINAL REPORT OF THE PROJECT OVERSIGHT COMMITTEE - EXECUTIVE SUMMARY

Wednesday, September 17, 2003





Table of Contents

Background	1
Situational Assessment Overview (Phase 2)	4
Summary of SWOT Analysis and Findings (Phase 3)	6
Option Development and Value Analysis Overview (Phase 4)	7
Integration with Canada Health Infoway Initiative	11
Summary and Next Steps	12

BACKGROUND

In the Fall of 2002, the hospitals of Southwestern Ontario (SWO) engaged Deloitte & Touche LLP (Deloitte) to conduct a Regional Imaging Needs Assessment study (Needs Assessment). An overview of the purpose, scope and objectives for this Needs Assessment are provided below, to provide a deeper context for the work undertaken.

Introduction

There are 22 hospital corporations in SWO, comprised of a total of 33 hospital sites, in addition to several community facilities. SWO hospitals are primary non-academic community facilities, however the network of hospitals does also include London Health Sciences Centre (LHSC) and St. Joseph's Health Care, London, which are academic hospitals affiliated with the University of Western Ontario (please refer to Appendix A for a listing of the SWO hospitals that participated in this Needs Assessment).

As a part of an ongoing effort to improve diagnostic imaging (DI) services throughout SWO, the SWO hospitals came together and decided to undertake a needs assessment to better understand the potential for working together in the face of continued workload pressures, insufficient capital resources, and medical and technical human resource constraints. This network of hospitals (the SWO DI Network) also wanted to understand opportunities for improving the availability of DI services throughout the Network.

Project Scope and Objectives

The SWO DI Network engaged Deloitte to lead a Needs Assessment to better understand the state of DI throughout the SWO region, and how SWO hospitals might respond to DI challenges as a network, for improved DI service delivery. Specifically, the SWO Needs Assessment had five primary objectives:

1. To develop an accurate and comprehensive inventory of existing DI and Nuclear Medicine equipment and human resources in Southwestern Ontario by:
 - ❖ Surveying participating hospitals;
 - ❖ Interviewing Imaging Chiefs of Radiology and Nuclear Medicine, select hospital CEOs, and other key stakeholders; and
 - ❖ Soliciting input from relevant professional associations and the Ministry of Health and Long-Term Care.
2. To project future diagnostic imaging/radiology resource requirements.
3. To identify current & future strengths, weaknesses, opportunities and threats (SWOT analysis).
4. To generate a current status and future issues report.
5. To develop a regional model (or models) of service delivery based on the inventory, the SWOT analysis and stakeholder consultations. Additional components of the regional service delivery model(s) include exploring adoption of newer information and imaging technologies and other strategies to optimize limited human resource uses.

In summary, the SWO DI Network was seeking to establish a baseline understanding of current DI operations to identify opportunities for improvements in service delivery through a collaborative process. This report provides a summary of the approach, findings, Network options, and recommendations that were established through the course of the Imaging Needs Assessment.

Canada Health Infoway

It should also be noted that simultaneous to, and independent of, the Needs Assessment, the SWO DI Network also engaged in a proposal to Canada Health Infoway for funding of an initiative to implement certain components of a Network-wide DI service delivery model. Near to the end of the Needs Assessment project, SWO had been awarded funding from Canada Health Infoway.

This resulted in a preliminary conceptual integration of the Canada Health Infoway initiative and the Imaging Needs Assessment, to maximize improvements to DI service delivery across the SWO Network. A brief description of the Canada Health Infoway and its integration with the service delivery model developed through the Needs Assessment project will be presented at the end of this Executive Summary.

Project Approach

The Imaging Needs Assessment adopted a five-phased approach:

- **Phase 1:** Project Planning/Launch
- **Phase 2:** Situational Assessment
- **Phase 3:** SWOT Analysis
- **Phase 4:** Strategic Options and Value Analysis
- **Phase 5:** Final Report and Recommendations

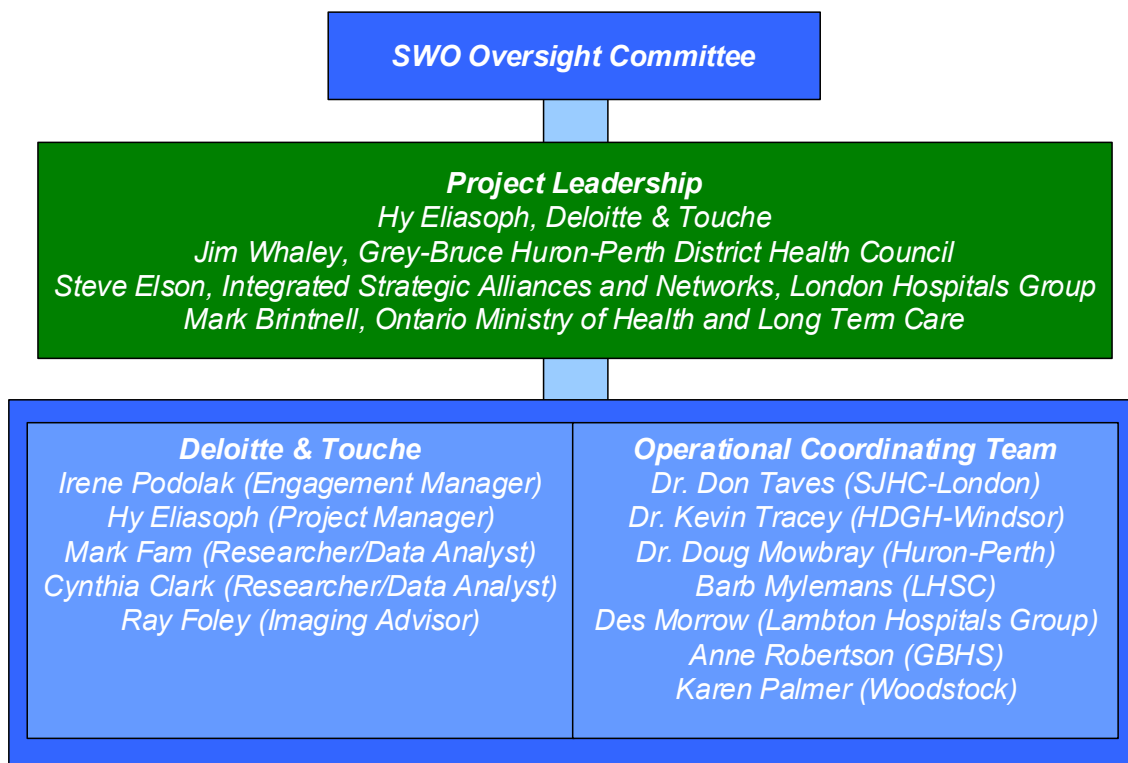
The key principles in the consulting approach included:

- *Consultations* across a spectrum of stakeholders within SWO, and an appreciation of the sensitivity to the needs of constituency stakeholders.
- Incorporation of *additional consultation with Imaging Physicians and CEO groups* to ensure these key stakeholder groups had sufficient voice.
- A *collaborative, participative approach* that maximized the experience and insights of the stakeholders.
- Balancing *consideration of risks and benefits* associated with suggested opportunities for improvement.
- Close working relationship with DI and administrative stakeholders to attempt to resolve and/or highlight data challenges.
- *Independence and objectivity* to ensure credibility of findings and recommendations.
- *Open communications* that enabled both internal and key external stakeholders to provide input throughout the project.
- *Focus on change requirements* (barriers and business enablers), to successfully implement the recommendations.

Project Team

Given the large number of stakeholders in the Needs Assessment project, a collaborative approach was taken, and the Deloitte team formed an integrated project team structure with the SWO stakeholders. As depicted in Figure 1, below, an Operational Coordinating Team (OCT) functioned as a working group on behalf of the larger Oversight Committee. The primary role of the OCT was to validate and provide feedback on draft material before its presentation to the Oversight Committee, and to give direction to the Deloitte team, as required.

Figure 1. SWO Imaging Needs Assessment Project Team Structure



SITUATIONAL ASSESSMENT OVERVIEW (PHASE 2)

The primary objective of the situational assessment was to examine the current operating performance for DI in SWO, with respect to expenses, revenue, staffing and workload. From this assessment, a baseline understanding of the challenges faced by DI with respect to medical and technical human resource shortages, the need for additional capital equipment resources, and other operating factors were established.

Key components of the assessment, and their linkage to the next phase of the Needs Assessment, are identified below:

- ***Quantitative Findings***
 - ❖ High Level – Current Operations (Expenses, Revenue, Staffing, Workload)
 - ❖ Modality Review – Operating Performance (Expenses, Revenue, Staffing, Workload)
 - ❖ Equipment Inventory and Status
- ***Qualitative Findings***
 - ❖ Review of Documentation
 - ❖ DI Management and Physician Surveys
 - ❖ CEO Interviews
 - ❖ Imaging Physician Interviews
- ***Literature and Best Practice Review***
 - ❖ High Level Literature and Best Practice Review
 - ❖ Key Lessons from the Field

The primary method of data collection was a two-part survey that was distributed to each of the participating SWO hospitals, which consisted of both qualitative (DI Survey) and quantitative components (Data Request). Although the survey sought an extensive amount of information and data, overall response to this survey was very high - of the 22 organizations that were surveyed, 21 responded.

The following table, in Figure 2, presents an inventory of the organizations surveyed, and the response received-to-date. Areas of the table that are marked with an ‘✘’ represent items that were not received from specific organizations.

Figure 2. Degree of Submission for Organizations Surveyed

Organization	Management Survey	Physician Survey	Data Survey
Alexandra Hospital	✓	✓	✓
Chatham-Kent Health Alliance	✓	✓	✓
Grey Bruce Health Services	✓	✓	✓
Hanover & District Hospital	✗	✗	✓
Hotel-Dieu Grace Hospital, Windsor	✗	✗	✗
Huron Perth Hospitals Partnership	✓	✓	✓
Lambton Hospitals Group	✓	✓	✓
Leamington District Memorial Hospital	✓	✓	✓
London Health Sciences Centre	✓	✓	✓
Middlesex Hospital Alliance	✓	✓	✓
South Bruce Grey Health Centre	✓	✓	✓
St. Joseph's Health Care, London	✓	✓	✓
St. Thomas-Elgin General Hospital	✓	✓	✓
Tillsonburg District Memorial Hospital	✓	✓	✓
Windsor Regional Hospital	✓	✗	✓
Woodstock General Hospital	✓	✓	✓

SUMMARY OF SWOT ANALYSIS AND FINDINGS (PHASE 3)

The Situational Assessment and SWOT Analysis revealed ten factors as the primary drivers for change:

1. DI finances are impacted by technical fee clawbacks, hospital deficits, increasing patient needs, physician FFS caps, high demand on hospital foundations for capital funding, and the potential globalization of technical fees (HIAC).
2. Lack of MOH funding for SWO activities and DI technology means that SWO hospitals will have to self-fund, or find alternative funding sources (e.g. MEF2, foundations, etc.).
3. The current shortage of Imaging Physicians and Technologists is expected to increase over the next several years.
4. There is a large amount of outdated equipment throughout SWO, which is impacting the level of patient care and service delivery that can be achieved.
5. There is a low level of PACS currently implemented, and a lack of a SWO-wide WAN – all of which create a challenge in the sharing of images and reports for improved patient care and access.
6. Imaging Physicians note difficulty with increasing service demands, outdated imaging equipment, and current physician shortage, especially with respect to on-call after-hours coverage.
7. The demand for DI services is increasing through both referring physician and patient demand, as well as an expansion of the scope and role of DI services (e.g. disease screening and interventional work). An example of this is observed in the expansion of major clinical programs, such as cancer care, which are highly dependent on DI to deliver their patient care services.
8. There is a desire and need for increased continuing medical education time and funding for physicians and technologists.
9. Physician and technologist staffing, recruitment and retention are impacted by physician FFS caps, discrepancies in technologist salaries, SWO geography, and hospital deficits.
10. SWO geography includes weather and distance challenges – which will impact potential sharing and/or distribution of resources.

OPTION DEVELOPMENT AND VALUE ANALYSIS OVERVIEW (PHASE 4)

The findings from the Situational Assessment and SWOT Analysis revealed several opportunities for improving DI service delivery that could be achieved through a Network-wide collaboration across SWO. In order to consider the different service delivery and collaboration models/options that would be both appropriate and feasible for the SWO DI Network to consider, the following 6-step process was undertaken:

1. Identify Purpose and Scope of Strategic Options.
2. Identify Principles for Strategic Option Development.
3. Identify Criteria for Value Analysis (Appropriateness and Feasibility).
4. Develop Preliminary Strategic Options.
5. Validate Strategic Options with the Operational Coordinating Team.
6. Conduct Value Analysis Workshop with Oversight Committee to Select Preferred Strategic Option(s).

This process involved significant stakeholder input, from both the Operational Coordinating Team and the Project Oversight Committee. A series of meetings and workshops were held to solicit feedback, build consensus, and determine the optimal service delivery model for DI across SWO. A consolidation of this process is presented in this Final Report.

The first stage in the option development and value analysis process has been iterated throughout the Situational Assessment and SWOT Analysis, and is captured here as a summary of the primary objective of this Needs Assessment: *to develop a SWO DI Network model to improve DI service delivery across the Network, with specific attention to alleviating the impact of human resources and capital funding shortages on patient care delivery and access to DI services.*

Principles and Criteria for Option Development

The following guiding principles for option development were selected, in conjunction with the Project Oversight Committee:

- Increased coordination of service delivery.
- Improved patient care and equitable access to DI services across SWO (at SWO and local levels).
- Improved overall distribution of funding, staffing, and DI physicians relative to reported shortages.
- Improved linkages between hospitals within SWO.
- 100% interoperable PACS and WAN implementation across all modalities and hospitals (DICOM and HL7 compliant, regardless of vendor).
- Enabling of remote access to images, call coverage, and consultation.
- A coordinated approach to SWO training and education of imaging physicians and technologists.

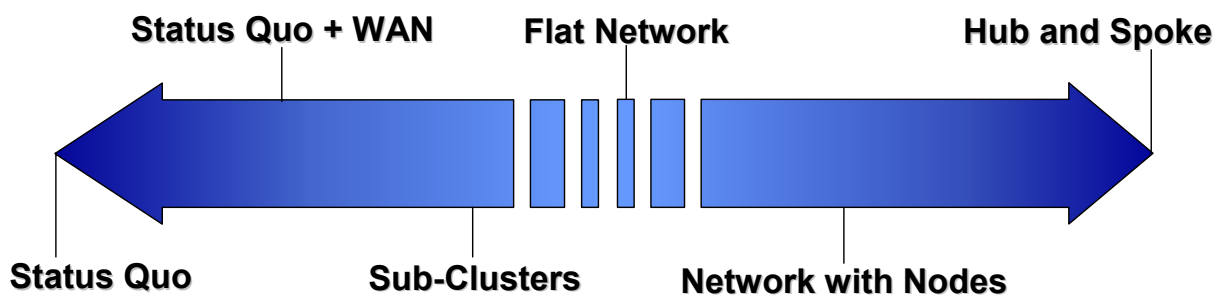
Findings from the Situation Assessment also suggest the following additional assumptions and guidelines:

- Each participating organization will continue to be separately and distinctly governed.
- PACS technical solutions will be determined locally and will be compliant with existing technical standards (DICOM and HL7, regardless of vendor).
- Improved linkages to referring physicians (web-based access of images and reports).
- Ongoing commitment to maintaining current DI technology.
- Equitable distribution of additional non-organization-specific costs throughout the SWO participants.
- SWO would collaboratively lobby the MOHLTC for additional SRI approvals to remove physician FFS caps, increased DI funding, and coordinated efforts to increase MEF2 funding for DI.
- IHFs would be invited to work collaboratively with the Network.

DI Service Delivery Options

There are 6 options for DI service delivery and coordination that were considered with the Oversight Committee, which fall along a continuum from a more to less coordinated infrastructure, as per Figure 3, below.

Figure 3. SWO DI Service Delivery Option Continuum



Common to all of the options was a set of integration considerations that were identified as having potential application to the selected SWO service delivery option. These integration considerations were:

- SWO training and education of imaging physicians and technologists.
- ‘Nighthawk’ physician call coverage.
- Human resources strategy on recruitment and retention.
- Equipment purchasing and maintenance.
- Modality-specific scheduling.
- Modality-specific funding distribution.
- Inter-hospital agreements.

Primary Node Identification

The value analysis reinforced the fact that the six geographic areas within SWO would serve as a good basis for Primary Nodes in the SWO DI Network. In consideration of the value analysis, as well as the current SWO geography and hospital alliances, it is recommended that these six geographic areas serve as the coordinating units for the SWO DI Network. The result of discussions with the Project Oversight Committee was the selection of the following six Primary Nodes for the Network, as identified in Figure 4, below.

Figure 4. SWO DI Service Delivery Model Primary Nodes

Geographic Area/Hospital Alliance	Primary Node Location
Windsor-Essex	Windsor
Chatham-Kent Health Alliance	Chatham
Lambton Hospitals Group	Sarnia
Thames Valley Hospital Planning Partnership	London
Huron-Perth	Stratford
Grey Bruce Health Network	Owen Sound

Incorporating these six Primary Nodes into the service delivery model for DI in SWO, the SWO DI Service Delivery Model Network is presented in Figure 5, below.

Figure 5. SWO DI Service Delivery Model Network



SWO DI Service Delivery Model Description

At a high-level, the SWO Service Delivery Model will be built upon a small number of interconnected Primary Node hospitals, each of which will, in turn, be connected with geographically clustered ‘Secondary Node’ hospitals. These hospitals will be linked together to serve the diagnostic imaging needs of the population around them. The Primary Node hospitals will have a lead coordinating role within each cluster.

Overall, the direction of the Project Oversight Committee was that the SWO hospitals should be asked to form a SWO DI Network to coordinate and serve the diagnostic imaging needs of the population of Southwestern Ontario.

Functional Objectives

Critical to the development of a SWO DI Network are the functional objectives for delivering DI services. These include the following:

- Coordinating DI services within Network nodes, and across SWO.
- Minimizing additional DI overhead in SWO.
- Having fair and equitable participation and representation from all hospital organizations.
- Recognizing local responsibility for patient care, service delivery, management, staffing, technology, and financing.

In order to achieve these objectives, both general and specific functional requirements have been identified to support implementation planning.

SWO DI General Functional Requirements

Key to the success of the SWO DI model will be an oversight or steering committee function that has representation from all participating hospitals, either directly or through local hospital networks. This oversight function would oversee the coordination of DI services across SWO, including the complete implementation, and ongoing maintenance, financing and promotion of the DI Network.

There is also the need for a Medical/Technical team to support the design, implementation and maintenance of a PACS and WAN across SWO, the role of which should include the following:

- Ensuring inter-operability and system stability.
- Maintaining central data repository back-ups.
- Coordinating local PACS and WAN implementation and maintenance across the Primary Node clusters.
- Providing support to local Medical/Technical teams.
- Providing on-site troubleshooting and maintenance (as needed).
- Providing local administrative support for the coordination of DI services within the Primary Node cluster, as well as delivering DI services locally.

SWO DI Specific Functional Requirements

In support of the general DI functional requirements, several specific functional requirements and considerations have been identified for SWO, including the following:

- Shared Services Agreement.
- Funding, Financial and Budget Management.
- Service Delivery Coordination.
- Human Resources and Professional Education.
- Equipment Acquisition and Asset Management.
- Technology and Equipment Integration.
- Stakeholder Engagement.

These specific functional requirements and considerations should be supported, coordinated and directed by a SWO steering committee or oversight function, whose structure can be designed to best meet the needs of the SWO DI model.

INTEGRATION WITH CANADA HEALTH INFOWAY INITIATIVE

Canada Health Infoway Initiative Background

In December 2002, the Southwest region was invited to respond to a Request For Information (RFI) from Canada Health Infoway (Infoway). This RFI asked the region to submit information on current resources and to propose how the region would use a shared services model to develop digital imaging services in the region. A proposal was submitted in late January 2003.

SWO was approved for funding through this RFI, under the project title ‘**Southwest Ontario Digital Imaging Network Project**’. This Project provides the opportunity to begin building a SWO DI Service Delivery Model that is supported by significant financial resources, through Canada Health Infoway. The initial implementation is planned to take place among the eight hospitals in Thames Valley, which will be followed by additional implementation phases throughout Southwestern Ontario.

Specifically, Infoway is interested in supporting the development of a shared services digital imaging model. That is, technology and information systems will be shared across participating organizations. Infoway sees this approach as being more affordable, supporting expanded radiology coverage; reducing storage, technology and patient transfer costs; supporting faster turnaround on results; increasing productivity; and eliminating film duplication. The financial model that is being proposed to sustain this Network on an on-going basis is a transactional model, in which both operating and capital costs will be addressed through payment of transaction fees by participating organizations.

Integration with the Canada Health Infoway Initiative

The SWO Imaging Needs Assessment Project has established a vision and model for DI in SWO that provides a basis for service delivery that is consistent and compatible with a model of regional shared services among a large group of hospitals. It identifies key principles to ensure broad geographic and constituency involvement in decision-making. It identifies key components such as human resources, infrastructure and communications that need to be addressed. Further, the vision builds on and strengthens the fabric of the local SWO geography, referral patterns and hospital alliances, and incorporates functional requirements that promote a shared services model for DI delivery.

These key characteristics indicate that the SWO vision and model are consistent and compatible with the approach proposed by Canada Health Infoway for fostering and supporting DI service delivery in Ontario. This is particularly relevant in light of the fact that Ontario does not have a regional health care structure, and that all hospitals in SWO have come together under the DI Network to explore a regional service delivery model. Indeed, the SWO DI Network concept/approach, whose vision and model have emerged through the Needs Assessment, is among the first of its kind in Ontario, wherein an entire group of hospitals have come together on a voluntary basis to develop a DI service delivery model on a scale comparable to the largest health regions in Canada.

In summary, the SWO vision and model provide the basis for the integration and consolidation of the SWO DI Network with the Canada Health Infoway initiative, as this model is consistent with the Infoway emphasis on shared services in Ontario.

SUMMARY AND NEXT STEPS

A general vision and service delivery model has been developed that provides a set of guidelines and parameters for moving towards the system-wide coordination of DI services in SWO, over the next 5-10 years. It will be critical to obtain buy-in to this framework and model from all stakeholders within SWO, through extensive communication and consultation.

Key immediate next steps for SWO include the following (1-3 month timeline):

- Obtain buy-in to vision and model from all key SWO hospital stakeholders.
- Coordination with Canada Health Infoway to integrate efforts into one consolidated initiative that reinforces the complementary nature of the SWO vision and model, and Canada Health Infoway's approach to shared services.
- Establish an appropriate structure/vehicle to continue the efforts of the Project Oversight Committee, and provide leadership and direction in coordinating the evolution of the SWO DI Network.

Key short- to mid-term next steps for SWO include the following (1 - 6 month timeline):

- Development of an inter-hospital agreement that addresses funding, human resources, technology, and distribution of resources across SWO.
- Development and positioning of a business case that promotes SWO to external funding sources such as the Medical Equipment Fund 2, and the MOHLTC.
- Implementation planning to determine key tasks, timelines, accountabilities, and milestones.