eHealth *Ontario*
www.ehealthontario.on.ca

Annual Business Plan

2014/15

June 23, 2014

Ontario
eHealth Ontario

Table of Contents

Executive Summary: eHealth Ontario's Service Mission

Introduction

Ontario faces daunting fiscal challenges. In this regard, the Board of Directors believes that the objectives and measures set out below will raise the quality bar and Agency performance, notwithstanding the fiscal restraint proposed. The Agency aims to continuously earn the support of its clients in the Ministry of Health and Long Term Care, Ontario's broader health care sector and the patients served. The Agency is entering a new phase of maturity requiring significant organizational development to materially contribute to:

1. A greater degree of conformity to common practices in the delivery of services
2. The clinical relevance of the services delivered
3. The predictability of the quality of services
4. The certainty that services will be delivered on time and on budget
5. The uniformity of the image and reputation and value of the Agency to the delivery of health care services in Ontario

The Benefits of Systems Integration

eHealth Ontario utilizes a variety of techniques such as computer networking, enterprise application integration, clinical and business process management and manual programming to achieve the benefits and efficiencies of integration. Integration often involves connecting existing and disparate subsystems. The eHealth Ontario mandate is to facilitate integration across a wide array of networks allowing their related data assets to logically connect to add value to the system as a whole.

eHealth Ontario, in association with regional partners, is currently building the provincial Health Information Access Layer (HIAL), defined as computer software which integrates disparate applications and services to facilitate effective and secure data exchange. It uses the concept of "systems integration" to create a logical and a more productive environment for institutional and private developers and product vendors to make a positive contribution to the electronic delivery of eHealth solutions. The Agency's Integration Platform seeks to create an environment in which software and technology infrastructure engineers can:

- Ensure that health information in multiple systems is kept consistent, since all integrated applications are using the same datasets
- Integrate all kinds of applications that bind together in workflows using the uniform interface in the Integration Platform ("process integration")
- Collaborate between distributed applications over the network
- Interoperate between different operating systems and programming languages by the use of similar interfaces
- Take privacy and security considerations into account when data is shared
- Develop standardized eHealth user interfaces (e.g., screen formats)

The Benefits of Regionally Coordinated Delivery

Whether you are a resident of Thunder Bay, Toronto or London, clinicians providing care should have access to the same core types of health information, at the right time, in the right care setting. eHealth Ontario has built foundational systems capable of creating a level playing field of common information available across the province. To implement and deliver this efficiently and practically, eHealth recognized solutions could not be built and delivered without regional engagement, consultation and alignment to local priorities, both clinical and business.

Accountable for the delivery of the province's foundational ehealth systems, eHealth Ontario has recognized that solutions must be built and delivered with upfront clinical engagement and consultation to enhance the value proposition, encourage adoption and ensure alignment to health system priorities, both clinical and business, locally, regionally and provincially. This results in a more coordinated and orchestrated approach to the health sector, and the creation of platform that the

province can leverage to increase standardization, improve efficiencies, encourage consolidation and rationalization of duplicate efforts.

Results and Achievements

The following summarizes the Agency's current results and achievements.

Regional Integration: cGTA, representing over 6.5 million Ontarians, is one of the largest single ehealth integration delivery programs in Canada. The full solution is now in the final stages of testing. cGTA has acquired and started capturing data in a clinical data repository (CDR) that now holds over 24 million pieces of data from 2.1 million Ontarians. With 20 early adopter organizations populating data into the CDR, it now contains approximately 50% of all patient acute data, 93% of Community Care Access Centre (CCAC) data and 75% of lab results. 15 organizations and their clinicians have electronic access to patient data such as lab results, hospital reports, and CCAC service data in the early adopter phase. Planning is underway to integrate the Ministry of Health and Long-Term Care (MOHLTC) Ontario Drug Benefit database, the eHealth Ontario Client and Provider Registries and to extend the solution to more GTA organizations.

During the previous year cSWO has achieved numerous outcomes including implementation of a robust regional hub program governance accountable to eHealth Ontario, including experienced delivery partners in each south west LHIN with representatives of the health continuum and related provincial services in this governance. Four experienced local Change Management & Adoption HSP partners (1 per LHIN) have been selected and funded to deliver "last mile" adoption under LHSC's direction. The cSWO Regional Clinical Viewer has been enhanced to regional capacity including integration readiness for the major hospital information systems in the region and adoption enhancements over 3,400 clinicians bringing registered users to over 18,000 users. eHealth Ontario has concluded several "clinical value projects" in the past year which accelerated EHR systems access to clinicians while providing readiness in the region for broader regional and provincial EHR solutions. 100% of hospitals in WW and HNHB LHINs are now integrated to the Regional Clinical Viewer and expansion of the Regional Clinical Viewer into Erie St Clair and South West LHINs hospitals is underway. Integration of OLIS data into the Regional Clinical Viewer is now in place to facilitate access to patients' lab data and 100% of CCACs are integrated to Regional Clinical Viewer.

During the previous year, cNEO achieved numerous outcomes including completing the detailed planning process. The process included the establishment of the cNEO regional hub governance model which is accountable to eHealth Ontario, with cross regional representation across the health continuum, LHINs and related provincial services. This regional EHR plan, built in consultation with sector stakeholder's gains buy-in and endorsement to a comprehensive plan that will implement key EHR solutions and services in the region aligned to the provincial Blueprint and to local clinician priorities. The extensive detailed planning and analysis process oversaw the participation of 1,000-plus stakeholders, complimented by mobilization activities to achieve immediate clinical value. The outcome of the process included the completion of the Planning and Mobilization phase of the project, clinical identification and validation of regional priorities, confirmation of alignment to the cGTA solution set and the development of a roadmap for implementation.

Connectivity: The provincial Health Information Access Layer (HIAL) is currently in production. It comprises the integration facility and connectivity with the Ontario Lab Information System (OLIS) to allow both synchronous and asynchronous messaging with community labs. The current HIAL supports the provider and client registries, patient selector and portal services to OLIS and the Drug Profile Viewer. This enables drug and lab data to be viewed in any point of care portal. Regional connectivity in the Greater Toronto Area (GTA) now facilitates the population of data into the GTA Clinical Data Repository (CDR) which currently holds over 5 million health records from 5 Community Care Access Centres and 11 hospitals in the GTA. The GTA viewer is in the process of being integrated with the CDR and OLIS. Southwestern Ontario and Northern and Eastern Ontario regions, having completed the necessary readiness planning, are about to enter their respective implementation phases for connectivity.

The Ontario Lab Information System (OLIS) puts lab results in the hands of clinicians. Currently, this provincial repository contains 75% of provincial lab data (96% of community labs). It contains over 1.25 billion results for 9.5 million Ontarians, with over 65,000 clinicians having access to OLIS.

OLIS is available to health practitioners using the Electronic Children's Health Network (eCHN), with plans to expand access to approximately 1,500 care providers via eCHN.

Diagnostic images are available to all 210 hospital sites in Ontario that perform diagnostic imaging (DI) exams. Those hospitals are now submitting DI reports and images into their respective DI repositories (DI-r). This achievement means that hospitals are able to store and share diagnostic images and reports performed in their respective regions. As well, all 91 neurosurgeons and all 16 Telestroke neurologists have access to the Emergency Neuro Image Transfer System (ENITS), which dramatically reduces unnecessary patient transfers, resulting in significant savings to the health system.

The medication management strategy, now led by the Ministry with the support of the Agency, is comprised of 3 initiatives: ePrescribing, Systemic Treatment Information System (STIP) and the Drug Profile Viewer (DPV). For ePrescribing, the Agency has contracted with two Electronic Medical Record vendors to prototype a basic prescription standard in their product prototype (to take place in September4. The Agency has offered to assist the Ministry in the formulation of the ePrescribing business requirements and acceptance criteria.

Electronic Medical Record (EMR) adoption by primary care physicians has reached over 70% of Ontario's primary care physicians, representing approximately 9 million Ontarians. Currently, there are over 11,500 providers (8,000 primary care and 3,000 specialists) enrolled in an EMR adoption program, of which, more than 9,000 are actively using and benefiting from EMRs in their practice.

Hospital Report Manager (HRM): Over 1,900 care providers in the community are receiving hospital reports through one of five platforms. Over 1 million hospital reports are electronically flowing to physician offices each quarter through HRMs as a result of the provincial HRM strategy.

Priority acute care reports: The clinical document repository, which contains priority acute care data (other than labs and diagnostic images) is live in the Greater Toronto Area.

ONE ID: Single sign on is a top priority of clinicians in the province. ONE ID, eHealth Ontario's province-wide identity provider and federation operator, allows health care providers to access health care applications using a single electronic credential. ONE ID already has 42,000 users accessing eHealth applications and is continuing to expand.

The Provincial Client Registry provides a unique identifier for every person with health information in the Electronic Health Record. The registry is comprised of data representing approximately 96% of Ontario's citizens. It is presently complimented with data fed from 195 (90%) of Ontario's hospitals.

The Provincial Provider Registry enables the identification of health care professionals and organizations that provide care in Ontario. The registry is currently in pilot production at The Ottawa Hospital. Its data population presently represents approximately 86% of Ontario's regulated health care providers, including records for more than 250,00 providers persons and more than 12,000 provider organizations.

The Electronic Health Record in 2015

Since 2010, Ontario has been working to create an Electronic Health Record for each of its citizens. By 2015, eHealth Ontario expects to have in place a secure network connecting the province's health care providers serving nearly 13.5 million citizens. This network authorizes access to important health information and data specific to each identified Ontarian. Authorized access means that the patient first consents to the viewing of their health data by registered providers within the patient's circle of care. This health information and data will include, where applicable, diagnostic images and radiologist reports, the results of laboratory tests ordered by patients' physicians, assessments resulting from any stay at an acute care hospital, assessments undertaken by a Community Care Access Centre, drug information from the Ontario Drug Benefit program, hospital discharge summaries and, in many cases, a primary care narrative.

Organizational Development

Pre-eminence of the Chief User

A fundamental success factor in the development and delivery of any project undertaken by eHealth Ontario requires the designation of a Chief User who shall have domain knowledge and authority over

the requirements of the intended project. There is only one Chief User per project. The Chief User is identified prior to the initiation of the project and shall be responsible and accountable for ensuring that the project satisfies the identified business needs, including:

- Development and approval of requirements and output specifications
- Development and approval of functional and performance-based user acceptance criteria
- Design and management of user acceptance testing, including provision of test data, test scripts and testers
- The certification that the test results are satisfactory and that the deliverables are ready for use

The Chief User ensures that the end users are appropriately consulted through the establishment of a process to ensure that the end users' needs and requirements are effectively communicated to the project team. Communication of user needs and requirements occurs:

- Through the Chief User
- By direct consultation with selected end user representatives
- Through the participation of selected end users on the project team

Throughout the execution of the Chief User's responsibilities, as set out above, eHealth Ontario will provide design and technical guidance, including process design and architectural and standards advice.

Architecture, Standards and Planning – Maximizing Returns on Ontario's Investments

Under the eHealth Ontario Chief Architect, the Architecture, Standards and Planning Division will provide centralized, coordinated leadership, support and training to its clinical, institutional and consumer clients as they work to implement and maintain Ontario's Electronic Health Record (EHR).

This group will establish itself as a shared service to EHR initiatives throughout the province, providing a single point of entry for all Architecture and Standards related services. Architecture, Standards and Planning will offer well-articulated service offerings and a straightforward engagement process. The value of its services is expected to be apparent and measurable to developers and innovators in Ontario at all levels, whether institutional, clinical or private. The Chief Architect will:

- Lead the promotion and advancement of architecture and standards-based development to ensure the best use of Ontario's eHealth technological assets in system design and funding decisions
- Develop an eHealth Ontario Roadmap and Connectivity Strategy which, together with the enhanced Ontario eHealth Blueprint, will provide a common vision for the future state of the EHR, as well as the path forward to realizing it
- Certify that existing and proposed health information and data systems satisfy the architectural design and data standards that qualify as eHealth solutions and EHR application components

Organizing for High Performance

In fiscal year 2015, eHealth Ontario's organization plan will change to achieve two key objectives:

- Project, program and service delivery roles will be better defined to achieve the highest professional qualifications and performance standards
- Organizational hierarchy and process complexities will be streamlined to improve performance and accountability

Management levels between the CEO and Agency's clients are expected to be reduced from 7 to 5.

Clinical Engagement and Medical Informatics eHealth Ontario seeks to match Chief Users' needs with the best solutions available to align with clinical needs.

From its cumulative knowledge of Ontario's health care delivery systems, the Agency is building a coherent eHealth network linking different computing systems, software applications and their data assets. This challenge involves the integration of multiple systems for processing, interpreting, storing, categorizing and managing data.

As the Agency overseeing the provincial EHR and supporting a value-driven quality of care delivery, it is essential to align ehealth planning and solutions closely with clinical needs to facilitate quality of

care, population wellbeing and ensure sustainability of health care system. Relevant medical informatics knowledge is a key asset; and to ensure the clinical alignment is mission critical to eHealth Ontario's full cycle of business.

To meet this growing challenge, eHealth Ontario has appointed a Chief Medical Informatics Officer (CMIO) who will lead the clinical alignment and medical informatics functions. The CMIO provides clinical leadership to support the agency in delivering its mandate. The goal is to influence business decisions by bringing clinical value to health care IT projects and deployment. The CMIO also serves as the Agency's ambassador connecting the agency more directly to Ontario's clinical communities.

The CMIO will champion the "value-driven" health care in ehealth planning and solution deployment by proactively engaging clinical community and disseminating the medical informatics knowledge to help establish the Agency's clinical priorities, overseeing the strategic evolution and project execution. The CMIO is the Council Secretary of the corporate Clinical Advisory Council (CAC) and Patient Advisory Panel (PAP) who ensures both clinical and patient perspectives are reflected in ehealth planning.

The CMIO will also aim to raise the knowledge bar and the comprehension of clinical needs and expectations among eHealth Ontario employees delivering services. Reporting to the CMIO will be the Agency's corporate Education Centre where curriculum development, knowledge transfer and continuous learning programs will be delivered to eHealth Ontario employees and clients. The Education Centre, will establish the Agency's education strategy and focus on medical informatics.

Also reporting to the CMIO will be the corporate Medical Informatics and Research Centre where the collection, collation and dissemination of "need and demand" information for ehealth benefit realization, clinical quality improvement opportunities will reside. These opportunities will be supported by applied research results from clinical and administrative process analyses, risk analyses and benefits realization studies – all accessible electronically.

The CMIO function will include the corporate Strategic Solutions Centre which will collect, collate and electronically disseminate relevant technology and process-enabled solutions found in other jurisdictions and market place. The Solutions Centre will also serve as "innovation incubator" to build knowledge-sharing relationships with information technologists and analysts practicing in the health care space.

Management of Human Resource Assets

eHealth Ontario seeks to maintain a broad range of skills defined by the breadth of its subject matter knowledge of health care delivery and the underlying logical analytics that enable appropriate integration of eHealth solutions. This integration skill set includes disciplined software and hardware engineering, interface protocols, and a general project management and problem-solving capacity. Appropriate solutions depend on continuous input from a wide range of engineers and medical scientists.

eHealth Ontario's human resources are corporate assets, managed alongside the Agency's knowledge assets. Judicious recruitment, deployment, development and retention of human resource assets need senior management attention. eHealth Ontario's Human Resources department is assembling more detailed and up-to-date individual employee profiles, logically organized and readily searchable, which will enable four important functions:

- Match employee characteristics and competencies to task deployment
- Determine individual development needs to match developing corporate needs
- Assess gaps in corporate capacity to match developing market demands
- Assess redundancies

eHealth Ontario's Vice-President, Human Resources will implement a full-function talent management facility early in fiscal year 2015 and, with the Chief Medical Informatics Officer, determine the training and development curriculum to strengthen the corporate profile of our human resource assets. Rigorous recruitment and redundancy strategies will also engage the senior management of the Agency.

Project Management Practice Standards

eHealth Ontario will enforce the universal use of the Integrated Project Management Framework which explains the generally accepted project management practices. Key practices for program directors and project managers will include:

- Assisting the Chief User with development of business requirements, risk analysis and business case development and performance-based acceptance criteria
- Research and identification of an appropriate approach for project delivery
- Development of an appropriate sourcing plan (internal, TPA, procurement, or a combination)
- Development and management of a project charter and plan including scope, detailed project plan, budget, work breakdown structure, project team, and risk management plan
- Delivering against defined scope, schedule and budget, and managing/mitigating risks
- Monitoring and reporting project status to the Chief User
- Within each authorized project, an embedded project control officer who will determine resource availability and forecasting, as well as manage project status reporting in cooperation with the imbedded project finance officer

Procurement Planning

At project initiation, procurement planning is a priority of eHealth Ontario. In seeking the best technical solution to satisfy the Chief User's requirements, the program director will conduct research and leverage available knowledge, experience and/or assets to establish a critical path to delivery for each project undertaken. This will establish a clear definition of a solution and a plan to acquire resources and capabilities, including people, hardware, software, applications and tools. Prior to concluding that procurement is required, program directors, in consultation with subject matter experts, will evaluate existing eHealth Ontario and Ministry resources/assets to determine if they are appropriate, and/or can be leveraged.

Core Business Management and Technology Evolution

Technology infrastructure and the alternative means of service delivery have changed markedly since the early days of the Smart Systems for Health Agency. The decisions then to build, manage and operate the network services required to accommodate health information applications serving the health sector in a proprietary fashion are now, arguably, outdated.

eHealth Ontario has evolved its technology infrastructure management model. As the demands for capacity and higher levels of service performance grow, the Agency needs to recalibrate the design of its service delivery model to satisfy the changing needs of its growing client universe. Alternatives to the status quo that achieve more effectiveness in the provision of technology infrastructure are to be examined intensively in fiscal year 2015. Included in this review will be the justification for the continuation of the Agency's second data centre. Alternatives include outsourcing to the Ministry of Government Services and/or the private sector. Entering fiscal year 2015, the initial step in this direction will be the outsourcing of the Agency's call centre.

Communications and Brand Management

To ensure the credibility of the Agency and present a consistent narrative focused on the adoption of EMR software as a critical tool in the establishment of digital health care, a "single point of quality control" is required in the management of all external eHealth Ontario communications. This control is housed within the Stakeholder Relations & Communications (SRC) division under the supervision of its Vice President.

All external communiques, whether website content, press releases, media backgrounders, promotional collateral and video production is housed within SRC. For any material to be released to the general public it must be first vetted by SRC, who may share it with the Ministry's Communications and Information Branch and the Minister's Office, as appropriate. The SRC is the single point of quality control for all such eHealth Ontario communications. It manages the "brand identity" of the Agency and acts as the "gate keeper" in dealing with contentious issues that could potentially jeopardize the Agency's reputation.

To ensure message consistency and visual identity, other divisions within the Agency seeking to promote their work and achievements must consult with SRC to develop any public/stakeholder materials. All messaging must link to and support the creation of Electronic Health Records (EHR) for Ontario's 13 million residents. It is through the establishment of EHRs that the government seeks to transform the delivery of health care. Information technology allows the storage and transmission of critical health care data such as x-rays, MRIs, ultrasound, drug history/prescriptions, laboratory tests through a series of digital networks across the province. This is the eHealth Ontario narrative that the SRC was established to support through a single point of quality control.

1 Introduction

1.1 Vision, Mission and Mandate

Created by the provincial government in September 2008, eHealth Ontario is a government Agency created to take a lead role in harnessing information technology and innovation to improve patient care, safety and access in support of the government's health strategy.

Vision

- Harnessing the power of clinical data and health information for better patient care

Mission

- To satisfy the eHealth service demands of the Ministry of Health and Long Term Care, Ontario's broader health care sector and the patients served

Mandate

- To provide eHealth services and related support for the effective and efficient planning, management and delivery of health care in Ontario
- To utilize computer networking, enterprise application integration, business process management or manual programming to achieve the benefits and efficiencies of integration
- To develop eHealth services operational policy
- To protect the privacy of individuals, whose personal information (PI) or personal health information (PHI) is collected, transmitted, stored or exchanged by and through the Agency, in accordance with the Freedom of Information and Protection of Privacy Act, 1990 (FIPPA), the Personal Health Information Protection Act, 2004 (PHIPA) and any other applicable law

The contents of this document fulfill the mandatory accountability requirements of the Agency in the ABP (as per Ontario regulation 43/02, the Ministry-Agency memorandum of understanding and the Agency establishment and accountability directive).

1.2 Environmental Scan

As a consequence of the increased technology use by citizens vs. the relatively low use of technology in clinical settings, since 2003, the Smart Systems for Health Agency's main role was to encourage the use of IT and electronic infrastructure in the health care space. Projects included ONE Network (a secure private network), ONE Mail (secure messaging and email), and ONE Portal.

Over time, technology became more ubiquitous and prevalent in everyday life, with the number of "online" Canadians growing from 50% to 80% (Canadian Internet Registration Authority, 2013), and the number of smart phone users representing nearly half of all Canadian cell phone users (Quoros Consulting Group, 2012). This rapid change has meant that patients and health care providers are increasingly IT savvy, and more importantly, they now have growing expectations regarding the potential uses of technology in clinical settings.

The rapid uptake of EMRs in the province, doubling in just six years (CWF, 2006; CWF 2012, Schoen et al., 2012), underscores the new order where clinicians are using technology to help them deliver care and patients expect their health information to be available online. This shift towards the desire to use technology in the delivery of health care means the Agency must understand the needs and requirements of its clients, while increasing the pace of deployment.

Given the aforementioned trends, the Agency has adopted the initiatives mentioned in the Executive Summary. By managing knowledge assets, the Agency will be better positioned to identify trends and respond to the evolving needs of clinicians and patients. The creation of the Chief User Policy to serve as a voice for users of the system will also allow the Agency to better understand and meet the needs of its clients. The move to outsource elements of its technology services allows the Agency to be more

flexible in meeting stakeholders' needs, while being fiscally prudent. Similarly, adhering to proven project management practice standards will allow the Agency to deliver high-quality results faster.

The Agency also is committed to supporting Ministry initiatives that aim to make the health care system more sustainable and interconnected, including Health Links, Aging at Home Strategy etc.

Overlaying all of these trends is the fiscal restraint that the Ontario government is facing. With an estimated provincial budget deficit of $9.8 billion in 2012/13 and moderate economic growth for the foreseeable future, the Agency seeks the means to deliver services in a manner that is consistent with these fiscal conditions. The Agency remains committed to developing programs that increase productivity and efficiency, and reduce the cost of delivering care.

1.3   Strategic Priorities

The Agency will focus on the following key strategic areas, designed to navigate the challenges that must be addressed in order to fulfill the Agency's mandate.

Integration – Maximizing Clinical Benefits

By 2015, eHealth Ontario expects to have in place a secure network connecting the province's health care providers serving nearly 13,000,000 of its citizens. This integrated network will provide authorized access to important health information and data specific to each identified Ontarian. This health information and data will include, where applicable, a patient's diagnostic images and radiologist reports, the results of laboratory tests ordered by patients' physicians, assessments resulting from any stay at an acute care hospital, assessments undertaken by a Community Care Access Centre, drug information from the Ontario Drug Benefit program, hospital discharge summaries and, in some cases, a primary care narrative. To achieve the desired conformity to common design architectures and data standards, eHealth Ontario will provide coordinated leadership, support and training to its clinical, institutional and consumer clients as they work to implement and maintain Ontario's Electronic Health Record (EHR). The Agency will lead the promotion and preservation of architecture and standards-based development to ensure the highest and best use of Ontario's eHealth know-how found in its blueprint, design criteria, portal development and data standards. In addition, eHealth Ontario has gained significant experience in establishing and creating effective governance structures through its work with regional programs (cGTA, cNEO, cSWO) and other provincial initiatives. The Agency will continue working with the Ministry to create the necessary structures and processes needed to govern a provincial EHR.

Data Quality Management

eHealth Ontario will manage the accuracy, comprehensiveness and completeness of the data sets connected to the integrated network. In 2015, health care providers will have access to these data sets which, in aggregate, constitute the Electronic Health Record. The provincial client, provider and user registries assure authorized access to these data sets. It is crucial to manage the data quality in eHealth Ontario repositories and registries. In support of data quality management, eHealth Ontario will continue to manage the data standards, terminology and nomenclature. eHealth Ontario will also work with the clinical community to maintain clinical value through data entry standards which will assist with the consistency and standardization of nomenclature for data. In addition, in support of the completeness of data in all of these registries and repositories, eHealth Ontario will work with the Ministry to implement appropriate funding models for health service providers.

Secure Access and Privacy Management

eHealth Ontario will improve, maintain and grow the use of a centralized identity and access management service (ONE ID) that allows access to eHealth applications to Ontario's 300,000 potential health care providers through a single login for multiple systems. eHealth Ontario will also provide the facilities required for consent management to enable Ontarians to protect the privacy of their personal health information. eHealth Ontario will facilitate the reporting of unauthorized access to personal health information, report breaches or suspected breaches, alert the necessary parties and remedy the situation, where applicable. eHealth Ontario will work with the Ministry to facilitate public awareness of consent options.

Organization Development

The Agency is entering a new phase of maturity requiring significant organization development measures to materially contribute to:

1. A greater degree of conformity to common practices in the delivery of services
2. The clinical relevance of the services delivered
3. The predictability of the quality of services
4. The certainty that services will be delivered on time and on budget
5. The uniformity of the image and reputation of the Agency

The applicable measures are described in the executive summary section of this annual business plan. They include:

- The new operational policy on the role of the Chief User
- The establishment of the Architecture Program Office
- The better definition of project, program and service delivery leadership roles to achieve the highest professional qualifications and performance standards
- The streamlining of the organizational hierarchy and processes to improve performance and accountability
- The management of knowledge assets
- The management of human resource assets
- Procurement planning
- Core business management and technology evolution
- Communications and brand management

1.3.1 The 3 Pillars of the Agency

In support of the strategic priorities, the Agency is organizing itself into 3 business pillars that provide the foundation of the provincial EHR. The 3 business pillars are:

1. **Operations and Integrated Network Services**: The nuts and bolts of the three regional hubs that will ultimately merge to create the provincial HIAL.
2. **Clinical Data Management Services**: The branch of the Agency that is responsible for collection and sharing of clinical data ranging from lab test results to diagnostic images and everything that falls in between.
3. **Architecture, Standards and Planning**: Division of the Agency that enables systems to integrate with one another and is responsible for the blueprint and roadmap to get there.

These three critical business areas allow the Agency to create and share an electronic health record for every Ontarian that interacts with the health care system.

1.4 Approach to Success

This section outlines how eHealth Ontario will fulfill its mandate consistent with the strategic priorities outlined above.

Integration – Maximizing clinical benefits

The Agency will continue to make strategic investments that integrate clinical data and health information within the health care sector. Examples of regional systems that have received Agency investment include ClinicalConnect, Clinical Tools Adoption and North Eastern Ontario Network (NEON). These solutions serve as clinical value projects upon which regional programs will build and implement towards the provincial Electronic Health Record (EHR). Moreover, the Agency will continue to use the regional hub approach to accelerate delivery of the EHR and provincial services adoption by leveraging proven solutions and models, knowledge sharing and complementary implementations.

Establish provincial architecture and standards on interoperability and connectivity

eHealth Ontario has set the architectural scope and context for eHealth developments in the province, providing a framework for implementation of Ontario's EHR Connectivity strategy and the roadmap

required to achieve it. It enables the establishment of a set of standard architectures to be used by all participants. In addition, eHealth Ontario has established interoperability standards that allow disparate systems to readily exchange patient information, while leveraging regional innovation.

Build high performance systems, in an evolutionary fashion ahead of forecasted demand, ensuring they are scalable and always on

As eHealth Ontario is delivering critical clinical services and products, the need for robust "continuously available" technology is mandatory or patient safety could be impacted. This requires ongoing investment for 2015 and beyond in the Agency's operational resources. To this end, the Agency has moved to the world-class Guelph Data Centre and invested in operations delivery driven by key performance and service quality indicators. In addition to predictable service reliability and availability, clinicians will expect technical support and customer service when using the Electronic Health Record. To meet these expectations, the Agency continues to transform from a predominantly "build and deliver" organization to a predominantly "operate and support" organization.

Embed *Privacy by Design* to keep systems secure and health information private

eHealth Ontario will continue to invest in embedding the principles of *Privacy by Design* within all components of the Electronic Health Record, ensuring that patients can expect their personal health information to be protected across the entire continuum of care as health service providers interact with it at various points of care.

Support Health Links

In December 2012, the Ministry launched the Health Links initiative. eHealth Ontario has designated a Vice-President of Clinical Data Management Services to deliver the Agency's support to Health Links.

The Agency is ready to provide appropriate levels of support to the Health Links initiative, working with the Ministry, in particular, to ensure architectural and standards-based alignment. Through proposal reviews to identify information technology enablers and engaging with the appropriate program areas and external stakeholders, the Agency is supporting the consumption of available eHealth services. There is also regular engagement with the Ministry on its Health Links Advisory Committee. Some activities initiated include:

- ONE ID & Single Sign On:
  - The ONE ID team, in partnership with the Integrated Assessment Record (IAR) Health Links team, is targeting the delivery of single sign on in December 2013. This would allow users, via ONE ID accounts and eHealth Ontario's ONE Portal, access to the IAR application
  - Exploring feasibility of integrating ONE ID with the Ontario Association of Community Care Access Centres' (OACCAC) Client Health and Related Information System (CHRIS)
  - Development of a federated model and governance structure

- ONE Portal: Providing collaboration sites for Health Links (anticipating 77 sites in total)
- Provider Registry Portlet: Limited production release with 10 DI and 2 HL users being planned for November/December 2013. This release will define requirements and determine uses and value
- ONE Mail: ONE Mail registrations expected to increase through deployment of ONE Mail and change management services for Health Links stakeholders who require secure email

1.4.1 Key Areas of Focus

In order for the Agency to successfully perform its role as the system integrator for eHealth in Ontario, the Agency will focus on improving the following:

1. **Accountability and oversight**: eHealth Ontario's oversight of its partners' activities, and its approach to relationship management with these partners, will benefit from more rigour and discipline.

2. **Project planning**: eHealth Ontario's approach to project management will take a new direction in 2014/15. The Agency Project Management Office being integrated into the Corporate Services Division.

   Program Project Management Team establishes and maintains an Agency-wide project governance framework and standardized project management practices.

   The Project Management Officer oversees resource management of project managers and project coordinators and works closely with the Architecture, Standards and Planning division to align gating processes and ensure consistent application of the eHealth Ontario gateway policy and the upgrade roll out of the corporate management tool across the Agency. This tool, together with the proposed portfolio planning framework which is being finalized for implementation this year, will raise the Agency's project management maturity level.

   To strengthen project delivery at the agency, several initiatives have been undertaken to strengthen our people, and simplify our project methodology. Skill and experience requirements for each of our project management roles have increased. This revised competency model guides our hiring decisions, resulting in the successful recruitment of several experienced professionals. One Project Control Officer, a new role focused on developing, controlling and monitoring progress against the project schedule has been deployed. A pre-requisite to delivering a quality product is the development of comprehensive business requirements. Business analysts across the agency have been given detailed training on business requirements writing and solicitation that will increase the quality of business requirements captured in future projects.

   To meet project demands, the project management team will expand its capacity through the introduction of a flexible staffing model. By acquiring a vendor with strong project management capabilities, skilled resources to respond to agency project needs.

3. **Integrated project planning**: An integrated project plan, identifying every project needed to support the EHR, the various activities needed to deliver it, and the points of interdependence with all other projects is required.

4. **Enterprise reporting**: While eHealth Ontario regularly reports on the status of its projects, informed assessments of progress are difficult to make. A greater focus should be directed on how, more broadly, work is progressing.

5. **Engagement**: The ways in which eHealth Ontario meets the broader health sector's business and operational eHealth requirements will be a key measure of its viability as a credible partner in supporting the transformation of health care delivery in Ontario.

6. **Authority versus responsibility**: eHealth Ontario is a large, complex organization, and one of its challenges is alignment between managerial authority and responsibility.

7. **Organizational culture**: eHealth Ontario has faced extensive and critical media scrutiny. This has impacted organizational morale, and has influenced the agency's culture in various ways that sometimes affects performance and working relationships with external partners.

8. **Agency as integrator and operator**: The agency will co-ordinate and promote Health Informatics Standards & road maps
   - Create and maintain the connectivity strategy that articulates the future state of the EHR
   - Create and integrate project plan to identify dependencies between projects & components
   - Create and maintain health informatics messaging and terminology standards engaging stakeholders through information governance
   - Co-ordinate adoption of provincial Privacy & Security standards and practices
   - Co-ordinate delivery of eHealth solutions, datasets and partners
   - Provide governance of the Blueprint, health informatics standards, and connectivity strategy through the provincial EHR architecture and standards governance.
   - Establish and maintain provincial governance to regional delivery, integration services portfolio management planning and health services alignment

- Establish qualified and experienced delivery partner health service providers to achieve "last mile" adoption of provincial ERH solutions and datasets
- Maintain Architecture Program Office to lead stakeholder engagement and centralized intake and delivery of architecture, standards and planning services to the Province
- Integrate and operate EHR solutions at provincial and regional scales
- Operate high-availability and reliability support services to provincial solutions in support of clinician health services requirements

9. **Improve and enhance privacy and security governance in the EHR:** eHealth Ontario has focused on ensuring its services and processes are at the forefront of privacy and security best practices. Reliance on external partners in the secure operation of EHR systems is increasing. An integrated and consolidated view of Privacy and Security risk across the EHR in needed.

10. **Clinical value and benefits realization:** eHealth Ontario will focus on developing pragmatic approach to measuring the clinical and monetary benefits from eHealth investments.

11. **Organizational Effectiveness Review:** Organizational effectiveness is the structured measure of how effective an organization is in achieving the outcomes that it has been put in place to achieve.

    In the fourth calendar quarter of 2014, with the concurrence of the Ministry, it is proposed the agency conduct an organizational effectiveness assessment by a qualified independent third party who will report findings to the Agency Board of Directors and, in turn, to the Ministry.

    The Agency will seek the services of a third party vendor with a proven track record (the know-how) of conduction non-profit organizational effectiveness reviews. The mandate of the review will focus on agency's role as a systems integrator and the above list of key focus areas to provide evidence of progress and indeed upping its game.

2 Key Agency Functions

2.1 Project Management Quality Standards

Qualification Standards

eHealth Ontario requires the highest standards of excellence in its project management capabilities to ensure successful delivery of projects. In most cases, important eHealth Ontario projects with an identified Chief User, usually appointed by the Ministry, will be led by program directors, with project managers assigned to them to manage specific project deliverables within the program. The expectation of the program director is to deliver high quality solutions as required by the Chief User within agreed scope, budget and time, while conforming to eHealth Ontario architectural standards. The program director has full accountability and authority to deliver within these parameters and within the governing policies and controls.

All program directors and project managers require Project Management Professional (PMP) designations and strong project management competencies as demonstrated by success in delivering complex technology projects, as well as experience in stakeholder management, vendor management, and procurement and contract management, ideally in the health sector. As eHealth Ontario has projects of varying complexity (as well as size, value and risk), there will be a requirement for qualification standards at varying levels, for low, medium and high complexity projects. This also provides greater opportunity for career progression from a project manager to program director.

Deloitte was engaged in April 2011 to develop a standardized project manager competency model, identify desired maturity targets and perform an independent skills assessment of current project management resources against established targets. The initiative included stakeholder engagement, competency model development, and maturity target definition. Examples of personal competencies include factors such as leadership, client orientation, conflict resolution, change management and interpersonal skills. Examples of functional competencies include scope, time, quality, cost, risk, procurement and human resource management.

Senior management, including the Vice President, Human Resources, the Chief Medical Informatics Officer, the Chief Architect, General Counsel and the Chief Financial Officer, at eHealth Ontario will adopt a more active role in recruitment, retention and management of talented project managers/program directors and their equivalents.

Practice Standards

eHealth Ontario will enforce the universal use of the Integrated Project Management Framework which explains the generally accepted project management practices. Key practices for program directors and project managers will include:

- Assisting the Chief User with development of business requirements, risk analysis and business case development and performance-based acceptance criteria
- Research and identification of an appropriate approach for project delivery
- Development of an appropriate sourcing plan (internal, TPA, procurement, or a combination)
- Development and management of a project charter and plan including scope, detailed project plan, budget, work breakdown structure, project team, and risk management plan
- Delivering against defined scope, schedule and budget, and managing/mitigating risks
- Monitoring and reporting project status to the Chief User
- Within each authorized project, an embedded project control officer who will determine resource availability and forecasting, as well as manage project status reporting in cooperation with the imbedded project finance officer

Gateway Policy and Processes

In support of the Agency's Gateway Policy (the five stages that each project goes through from initiation to implementation), projects are evaluated at each stage for quality assurance and to ensure that the business objectives are met.

Focus in 2014/15:

- Strengthening the project management accountability and authority model and integrating a schedule and expenditure control framework for major projects in partnership with Finance
- Strengthening project initiation processes, including procurement planning and estimating processes (see executive summary above)

As recommended by the Ontario Internal Audit Directorate (OAID) in 2012, eHealth Ontario will adopt a formal business requirements framework to clearly identify, analyze and manage all business requirements. This is the Agency's Chief User policy (see executive summary above).

2.2   Transfer Payment Agreement Oversight

Transfer payments are one of the most significant components of eHealth Ontario's business. Operating within a government-wide framework established by the Transfer Payment Accountability Directive of 2007 (TPAD), eHealth Ontario regularly makes available to a wide variety of recipients funding for a diverse group of broader public sector projects. Transfer payments are required to be made under written agreements generally known as Transfer Payment Agreements (TPAs).

In the current fiscal year there has been significant work devoted to improving the TPA process at eHealth Ontario. In Corporate Services, a TPA process task force was formed and its work is ongoing. Specific measures taken as a result of this process include the following:

- Creation of an end-to-end Agency-wide TPA process map
- Creation of a RASCI chart, which formally defined and documented accountabilities and responsibilities of all parties involved in TPAs
- Creation of a TPA toolkit, which includes TPAD checklists, transfer payment best practices, effective transfer payment management, and the transfer payment risk documentation tool
- Creation of an Agency-wide master TPA register

In terms of compliance, the initial assessment of eHealth Ontario's TPAs is that they are largely compliant with TPAD and also with the Transfer Payment Accountability Best Practices Directive.

The nature of TPAs, however, is that the funder has wide latitude in how it administers its TPA program.

TPAD is a "broad brush" document intended to apply to all transfer payments made by the government of Ontario. While it contains mandatory stipulations, it allows ministries and classified agencies, as funders, wide scope for local action in how they meet its terms.

For example, while written agreements must be in place between funders and recipients, no particular form of such agreements is stipulated. Thus TPAD states:

"An agreement must be in place between the province and a recipient before transfer payments are made. This can be a negotiated agreement that is signed by the parties after the province decides to provide funding to the recipient (but before it flows the money), or it can consist of various documents exchanged between the parties".

In this context, TPA administration at eHealth Ontario is being conducted on a "continuous improvement" basis.

In 2014/15, eHealth Ontario intends to put in place the following improvements to its TPA process:

- **TPA Policy/Framework**: The work to date by the TPA task force will be consolidated and formalized by development of a formal TPA policy/framework. This will accomplish the following:

    - TPA administration at eHealth Ontario will be made consistent with procurement, which already has its own local policy
    - A TPA policy or framework will clarify roles and responsibilities between business units, corporate services and legal services

- **Recipient Guide**: To clarify the terms on which TPA funds are made available by eHealth Ontario, a recipient guide will be developed. The recipient guide will include a description of

---

- **Due Diligence Procedures**: Business cases for TPA funding will be required to detail due diligence procedures to be applied as a condition of funding. Funding will not proceed without resolution of due diligence issues and may be suspended if ongoing requirements are not met.
- **Dedicated Administration Group**: A dedicated TPA administration group will be formed. The administration group will supervise and process TPA transactions in a manner analogous to the Strategic Sourcing and Vendor Management (procurement) group. The mandate of the TPA administration group will be to assure consistency and conformity with TPAD and TPAD best practices without detracting from the responsibilities and accountabilities of the business units.
- **Performance Measurement and Improvement**: Building on the mandatory provisions of TPAD and utilizing TPA best practices, eHealth Ontario will further the dual goals of TPAD recipient performance measurement and performance improvement by:
    - Continuing to build oversight capacity at eHealth Ontario by:
        - Ensuring that all relevant employees are aware of TPAD, eHealth Ontario's TPA policy/framework and TPA best practices
        - Establishing and delivering a formal TPA training program for employees who manage TPA programs
        - Incorporating TPA related performance measures into the performance measures of employees who are involved in the management of TPA programs
    - Establishing a TPA risk assessment framework in order to ensure that performance objectives of TPA recipients are achieved and risks are consistently and comprehensively identified and addressed in a timely and effective manner by:
        - Reconciling financial information on a regular basis, investigating and resolving variances, and ensuring accurate reporting
        - Establishing risk criteria to ensure that all performance objectives are achieved
        - Performing periodic risk-based reviews
- **Corrective Action**: TPAD contemplates "graduated corrective measures" when corrective action is required. There is a large range in the scale and scope of eHealth Ontario TPAs. Graduated corrective action for a small project will be appropriately simple and rely principally on cessation of funding and, possibly, project termination. For large projects, more complex agreements on graduated corrective action are appropriate and project termination is not a viable option. Accordingly, eHealth Ontario will work with existing and new recipients to assure that new or revised TPAs contain corrective action provisions that are matched to the funded project and assure successful outcomes versus project termination.

2.3   Privacy and Data Protection

Ensuring that the privacy and security of personal health information (PHI) entrusted to the Agency is maintained is a critical success factor in the Agency's ability to fulfill its mission.

The eHealth Ontario Privacy Office has set three goals:

- Ensure the Agency is in compliance with its privacy obligations as it continues to build the provincial Electronic Health Record (EHR)
- Provide internal stakeholders with excellent privacy services and continuously measure and mature the privacy program so that it is able to support eHealth Ontario's transition from build mode to operations mode
- Provide external stakeholders with tools and solutions that establish a shared approach to privacy when accessing or contributing to eHealth Ontario's systems or services

To date, eHealth Ontario's privacy program has successfully focused on ensuring the implementation of, and compliance with, privacy best practices within the Agency. The privacy program is founded on the philosophy of Privacy by Design (PbD), a concept owned/defined by the Information and Privacy Commissioner of Ontario that consists of seven principles which, as operationalized, permeates all aspects of the Agency's activities as they relate to the creation and management of EHRs. PbD advances the view that the future of privacy cannot be assured solely by compliance with regulatory frameworks, but rather privacy assurance must ideally become an organization's default mode of

operation. PbD embeds privacy and accountability into every aspect of an organization's business practices, information technologies and physical infrastructure, resulting in a culture of privacy by making privacy the default.

The Privacy Office continues to work closely with the Information and Privacy Commissioner of Ontario to ensure the PbD principles are applied to and embedded in the Agency's overall business practices, physical infrastructure, eHealth solutions and services planning, and design. The ultimate goal is to establish a strong culture of privacy within the Agency.

The Agency has specific privacy and data protection obligations (as per the amended O. reg. 329/04 s.6.2) related to the creation and maintenance of EHRs. The provisions of the amended Personal Health Information Protection Act, 2004 (PHIPA) regulation require eHealth Ontario to put into practice privacy and data governance controls in relation to creating and maintaining Electronic Health Records. Administrative, technical and physical safeguards, practices and procedures will be implemented to protect the privacy of PHI and to enable the health information custodians to remain compliant with PHIPA provisions whenever they use eHealth Ontario's services. Summaries of relevant privacy impact assessments outlining these safeguards are made available to custodians and the public in advance of the eHealth service being deployed to authorized users.

In May of 2013, Bill 78 – the Electronic Personal Health Information Protection Act (ePHIPA - a Bill to amend PHIPA) was introduced in the Ontario Legislature and passed first reading in May of 2013. Passage of ePHIPA would have significant implications for the governance and operations of privacy at eHealth Ontario. eHealth Ontario will continue to anticipate reintroduction of eHealth privacy legislation. In the interim, taking the policy direction of ePHIPA into account, eHealth Ontario will continue with efforts to implement the policy instruction of the Ministry of Health and Long-term Care in its programs, such as direction with respect to the implementation and management of consent directives in the Consent Management Technology Program and audit and logging via the Monitoring and Consent Program.

Contemporaneously, privacy will work with internal and external stakeholders to implement technology and procedural changes specifically in the areas of patient access, audit and consent management in the broader healthcare community to ensure a consistent application of the policy underpinning ePHIPA throughout the EHR.

These efforts align with the roll-out of the Connecting regional hubs, supported by the Connecting Privacy Committee that was established in 2013/14 as an engagement structure. In 2014/15 the work to establish and build harmonized privacy policies will be further extended to support implementation.

2.4   Enterprise Risk Management

Managing enterprise risk is the responsibility of the Agency's CEO and senior management team within policy determined by the eHealth Ontario Board. An effective enterprise risk management program is underpinned by risk management activities in each business area with appropriate, timely risk identification, mitigation and oversight of the Risk Management Steering Committee. The principal enterprise risks and mitigation plans are summarized below.

2.4.1   Corporate Strategy

The successful execution of the Agency's priorities and strategy requires alignment with Board and Ministry objectives. Provincial regulatory and legislative changes are required in order for eHealth Ontario to fulfill its mandate.

A strategic review has been initiated by the Ministry and Board to assess the Agency's relationship with stakeholders in the health care community, build upon its achievements and establish a new mandate and strategy for the future.

2.4.2   Organization, Governance and Policy

Operations Risks

The Agency's mandate is to ensure delivery of available and reliable services to stakeholders, clients and Ontarians. It is subject to risks if processes are not robust enough to prevent disruption to the Agency's performance on service delivery or regulatory commitments.

There are various mitigating actions underway to support availability and protect personal health information. Security Services is implementing a security intelligence system and Information Security Management System (ISMS) to enhance existing security controls and governance. Continuous improvement of security controls are built into new systems being implemented providing enhanced controls for data loss prevention, identity/access management, security compliance, and alerting and reporting.

Business Continuity Management (BCM) plans are being updated for all units of the Agency to ensure effective response capability in the event of a serious incident/emergency that disrupts operations. Additionally, a data centre disaster recovery test is conducted annually.

Project Risks

The Agency's complex information technology development projects create high inherent risk to project planning and financial forecasting. These projects need to be well designed and executed, but also carefully integrated, to ensure that the entire portfolio of activity moves ahead synchronously. The Development and Delivery management team and the CFO Office are proactively managing this risk through integration of project management and financial management processes to improve timelines and accuracy of financial forecasting.

There is risk that vendors will not always be held properly accountable for deliverables. Strong, auditable project governance and oversight is needed for the Agency's major projects to ensure vendor performance is in place. Robust controls over vendor selection, due diligence processes for payments/contract management and compliance program oversight can also mitigate this risk. Delivery partners are closely monitored with oversight through executive steering committees and working teams. Detailed reviews of key artifacts, such as integrated project plans, are undertaken to assess progress against milestones and to ensure that delivery is in accordance with the relevant TPA.

Legal and Compliance Risks

Inadequate documents, legal agreements, compliance processes, dispute resolution procedures or insurance management practices would create unbudgeted liabilities or compromise the Agency's abilities to meet stakeholder expectations.

A broad range of insurance coverage is maintained. External support for the insurance program is provided by Marsh & MacLennan and by the Ministry of Government Services. While coverage is believed to be adequate, there is no risk management function in place that assesses adequacy of coverage with the benefit of detailed insurance experience and expertise.

The Legal department has implemented an enterprise compliance program to help the Agency mitigate compliance risks from government directives, legislation and regulations.

Human Resources Risks

The Agency's success in delivering on its mandate is dependent on acquiring and retaining leadership, specialized talent, skills and expertise. In addition to facing competition for these resources, eHealth Ontario faces challenges related to employee morale and compensation, especially in light of the ongoing public cynicism about the progress of eHealth in Ontario. Uncertainty, and the resulting rise in the level of voluntary turnover at management levels, is of increasing concern.

To reduce impact, the Human Resource department is implementing a variety of mitigation plans including programs for leadership development, talent management, succession planning, performance management and total compensation management. Workforce engagement plans to address retention are being developed at every management level.

3   The 3 Pillars of the Agency

In support of the strategic priorities and eHealth Ontario's mandate, programs and departments have been organized into 3 pillars.

Operations and Integrated Network Services	**Clinical Data Management Services**	**Architecture, Standards and Planning**
Provincial hub model creating a platform for delivery, innovation, implementation and adoption of secured and private patient electronic health record across the province – cGTA, cNEO and cSWO Operating provincial grade systems to ensure high availability, robustness and performance.	The collection and sharing of clinical data, ranging from lab results to diagnostic images and everything that falls in between	Enables systems to integrate with one another and is responsible for the blueprint and roadmap to get there

The EHR programs provide the foundational elements of the health record, including repositories and registries, to contribute to a robust clinical profile. As well, the eHealth Ontario EHR projects provide access and identity management tools to ensure the privacy and security of personal health information. These foundational projects will be integrated into the larger EHR landscape through point to point connections, alignment with regional solutions as well as access via electronic medical records (EMRs).

In order to provide the foundation of the provincial EHR, EHR Programs have been aligned to the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar. This ensures a focus on the service delivery required by the clinicians and patients of Ontario.

The Architecture, Standards and Planning pillar allows for eHealth Ontario to be the systems integrator of the provincial assets under the eHealth Ontario portfolio.

3.1   Operations and Integrated Network Services

3.1.1   Integration Services Program

Purpose

The health sector in Ontario is filled with disparate health information systems that are unable to communicate or share patient information with each other. The lack of shared health information results in a fragmented view of a patient's interactions with the health care system across the continuum of care which in turn will result in higher rates of duplicated tests, rescheduled appointments and potential delays in patient care.

The Integration Services Program (ISP) is the core of the Agency's systems integration effort in Ontario. It is implementing the foundational components necessary to enable an individual's longitudinal health information to be accessible across the continuum of care in a secured manner and respectful of patient's privacy. ISP consists of three parts: the introduction of a province-wide connectivity layer known as the health information access layer (HIAL), access to provincial and regional information through regional portals or portlets and the capture and storage of relevant clinical documents in regional repositories called clinical data repositories (CDR).

This program will deliver clinical benefits to patients, by improving the access, quality and safety of care. Key benefits will include:

- An integrated view of patient information that results in improved clinical decision making with less reliance on patient and family recall

- Improved provider/patient communication and reduced patient exposure to duplication of testing
- Reduction of costly, unsustainable point-to-point connections through a managed and standardized network of interoperable systems
- Timely user access and a contribution of greater patient information, reducing the effort of managing paper records and improving efficient transfer of accurate information
- Secure, authorized access to provincial EHR information

Upfront provincial coordination in this program maximizes economies of scale of investment, ensures provincial grade technology capable of handling the province's transaction volumes, and reduces total cost of ownership as well as duplication of effort. It enables a standards based approach to ensure interoperability, while creating a primary point of secure access to the provincial EHR.

To deliver the provincial EHR, eHealth Ontario's regional integration approach includes the province's broader health sector with regional programs in the Greater Toronto Area (cGTA), South West (cSWO) and North and Eastern (cNEO) areas of the province. Subject to the provincial eHealth governance led by eHealth Ontario, the three programs are aligned in the regions for enhanced clinical stakeholder value to accelerate adoption outcomes

By extending eHealth Ontario's capacity and leadership through regional programs and governance, eHealth Ontario will leverage the integration of large segments of the population to achieve critical mass EHR value quickly by enabling connectivity between HSPs and implementing foundational services for the EHR. This also achieves economies of scale for provincial services (rather than 14 LHINs) for EHR interoperability, providing capacity and clear orchestration to the regions and their health service providers to achieve the EHR optimally and in alignment.

Scope

ISP includes two major streams of work: provincial common integration services and regional integration.

3.1.1.1   Provincial Common Integration Services

Purpose

The goal of the Provincial Common Integration Services (PCIS) Program is to enable the integration of health information systems across Ontario. PCIS is accomplishing this goal in compliance with Ontario's eHealth Blueprint through the implementation of a Health Information Access Layer (HIAL).

The HIAL supports the creation of an Electronic Health Record (EHR) for each patient by enabling the electronic sharing of a patient's clinical information (e.g., x-ray images, blood test results, medication history) among authorized health care providers. It does this by allowing patient information from different systems in different locations to be securely presented to health care providers in an aggregated, standardized manner, thereby improving the quality and efficiency of care. In addition, passing all data through the HIAL (which sits between the original repositories and the consumers of the data) allows the centralization of core functions such as authentication, authorization, consent management, monitoring and control, and audit logging, which would otherwise need to reside on a number of systems.

In the absence of a HIAL model, the design and delivery of an integrated EHR would rely on point-to-point integration — a considerably more complex and costly approach to address provincial scale.

Approach

In Ontario, the provincial HIAL Solution will comprise a number of federated HIAL "segments", three of which will serve particular geographic regions (Greater Toronto Area, South Western Ontario, and North Eastern Ontario). The fourth segment is the **eHealth Ontario HIAL** (refer to descriptions of **HIAL 1.0/2.0** below), which will provide access to shared resources such as repositories, registries, and line of business (LOB) applications that are owned by eHealth Ontario on behalf of the province.

- **HIAL 1.0:** This is also known as the "Integration Facility / Common OLIS Integration Layer" (IF/COIL). It is live in Production, and currently provides integration services for the Drug

Profile Viewer (DPV), OLIS portlet, and Ontario Drug Benefit (ODB) portlet. It also enables Public Health Labs (PHL) to submit lab reports to OLIS.

- **HIAL 2.0:** This is a continuous product upgrade of HIAL 1.0 to improve capacity, capability, manageability, and interoperability. HIAL 2.0 will ensure that the Agency has the capabilities to support the province's current and envisioned integration needs.

Scope

PCIS will continue to maintain and extend **HIAL 1.0** to meet the integration needs of LOBs until HIAL 2.0 is available. The following is a list of major in-flight integration projects:

- **Provincial Client Registry (PCR):** Will replace the Client Registry (CR) and Enterprise Master Patient Index (EMPI). It will be the authoritative source of patient identifiers and demographic information. Targeting Q4 2013/14.
- **Diagnostic Imaging (R1):** Will enable clinicians to access and share Diagnostic Imaging reports. Targeting Q4 2013/14.
- **Monitoring & Control Technology Assets (MCTA):** Will monitor PHI access across all eHealth Ontario domains. Targeting Q1 2014/15.
- **Consent Management Technology Assets (CMTA):** Will support the administration, management, and enforcement of consent directives for all eHealth Ontario domains. Targeting Q2 2014/15.
- **Clinical Document and Data Repository (CDR):** Will store and facilitate the retrieval of clinical documents across the province. Targeting Q3 2014/15.
- **Diagnostic Imaging (R2):** Will enable clinicians to access and share diagnostic images. Targeting Q3 2014/15.
- **Electronic Medical Record (EMR)/ Better Outcome Registry Network (BORN) Proof of Concept:** Will enable patient data to be extracted from EMRs and transmitted to BORN to enable better maternal care. Targeting Q4 2014/15.

HIAL 2.0 will incrementally deliver the following:

- **Cross-Enterprise Document-Sharing (XDS) Registry:*** Indexing service that enables the retrieval and sharing of documents by directing users to appropriate document locations. Foundation for sharing Diagnostic Imaging (DI) reports (see entry for Diagnostic Imaging R1 above). Targeting Q4 2013/14.
- * Technology for XDS was procured as part of the HIAL 2.0 initiative, but is initially being delivered/integrated via HIAL 1.0 in the context of the Diagnostic Imaging Common Services (DICS) Program to provide early realization of clinical value.
- **Terminology Services:*** Provides a central repository of clinical and administrative terminology. First priority is to enable a standardized nomenclature for DI images (targeting Q3 2014/15 – see entry for Diagnostic Imaging R2 above); long-term vision is to support all clinical domains.
- * Technology for Terminology Services was procured as part of the HIAL 2.0 initiative, but is initially being delivered/integrated via HIAL 1.0 in the context of the Diagnostic Imaging Common Services (DICS) Program to provide early realization of clinical value.
- **Core HIAL replacement:** HIAL 2.0 is expected to be implemented (targeting Q4 2014/15).
- **LOB service integration and Core HIAL enhancements:** Going forward, HIAL 2.0 will evolve in alignment with the integration needs of the province.

Milestones

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
HIAL 1.0 (IF/COIL)	MCTA: Integrate with IF to monitor access to PHI within eHealth Ontario domains. (May be aligned with CMTA release in Q2)	CMTA: Integrate with IF to support administra-tion, management, and enforcement of consent directives for all eHealth Ontario domains.	CDR: Integrate with IF to facilitate the retrieval of clinical documents.	EMR/ BORN: Proof of concept to allow patient data to be auto-extracted from EMR and transmitted to BORN to enable better maternal care.	Decommis-sion IF/COIL	
			DICS (R2)*: Integrate with IF *Enable clinicians to access and share images			
HIAL 2.0			Terminology Services: Integrate with IF to enable semantic interoperabi-lity among health care systems by providing a central repository of clinical and administrative terminology	Core HIAL Replacement: HIAL 2.0 will replace HIAL 1.0	LOB service integration and Core HIAL enhance-ments: Going forward, HIAL 2.0 will evolve in alignment with the integration needs of the province.	

3.1.1.2 Regional Integration

To facilitate and accelerate delivery of EHR services, eHealth Ontario has formed three regional hubs: connectingGTA (cGTA), connectingSouthWestOntario (cSWO) and connectingNorthernandEastOntario (cNEO). These regional hub programs are accountable for regional stakeholder engagement, including meaningful health service provider (HSP) and clinician adoption of provincial and regional EHR services. The hubs ensure alignment with provincial priorities, architecture and standards, while understanding regional priorities and capacity.

cGTA

cGTA is the regional hub program for the Greater Toronto Area (GTA), which covers about 50% of the province's population. The current scope of the cGTA project will offer 20,000 clinicians across the GTA instant access to province wide lab and medication information through OLIS and ODB, as well as 13 key types of valuable acute care patient health information such as consult notes, discharge summaries, and radiology reports from hospitals and CCACs within the Greater Toronto Area. Clinicians will be able to access this data online through a central web portal as well as through their existing clinical systems which will seamlessly integrate and retrieve data from these repositories.

The first of several major milestones was achieved in May 2013 when the participating 12 hospitals and 5 CCACs in the GTA started populating the Clinical Document Repository with their patient data. By February, an intentionally limited number of clinicians will begin using the provider portal to access

the CDR and OLIS to be followed by a full-scale roll out to approximately 20,000 clinicians that will commence in the summer of 2014. By 2015, cGTA will provide an additional 20,000 clinicians with access to the clinical documents and OLIS, including 75% of GTA lab results, 100% of CCAC documents and 85% hospital reports.

cSWO

cSWO is an initiative to implement the EHR for the 30% of the population residing in the southwestern Ontario. cSWO like cGTA will enable regional connectivity, and provide access to the provincial EHR. The cSWO initiative will leverage established partnerships in the region and coordinate the regional health service providers to deliver immediate clinical value in support of provincial EHR outcomes.

By 2015 the cSWO Regional Clinical Viewer will make available patient data from 68 hospitals, 4 CCACs and primary care settings to over 30,000 clinicians in Ontario's south west. The cSWO Regional Viewer will enable acute care data sharing throughout the region, enhanced by the integration of provincial and regional sources of patient data including labs, diagnostic imaging (SWODIN), and hospital discharge summaries. In addition to acute care data sharing, cSWO will work with eHealth Ontario and the Ministry to inform provincial development of the primary care data sharing strategy and solutions. cSWO will also integrate and make available through the Regional Clinical Viewer patient health information from the community care sector to all users including reports from 100% of the regional CCACs.

cNEO

cNEO is the regional hub for the North East, North West, Champlain and South East LHINs representing approximately 20% of the population of Ontario. cNEO like cGTA and cSWO will enable regional connectivity, make available priority clinical data through use of the provincial assets and provide access to the provincial EHR. Understanding the maturing relationships, referral patterns and other key business drivers within the region the cNEO initiative will leverage experienced delivery partners in the region establishing capacity through a regional program to coordinate the cNEO initiatives and deliver immediate clinical value in support of provincial EHR outcomes.

The cNEO Regional Clinical Viewer will be scaled to regional capacity including federated single-sign on functionality to hospital information systems which was deemed critical by clinician advisors during cNEO's detailed planning phase.

cNEO is also working closely with the northern LHINs to expand and leverage the existing and proven consolidated hospital information systems instances to achieve efficient and primary points of integration for provincial services. The North Eastern Ontario Network (NEON, a consortium of 22 providers led by Health Sciences North in Sudbury) and the North West Health Alliance (NWHA, a consortium of 13 hospitals led by Thunder Bay Regional Health Sciences Centre), in partnership with eHealth Ontario, are expanding their consolidated hospital site numbers to enable access to provincial services including Clinical Viewer, OLIS and hospital reports distribution. The cNEO Regional Clinical Viewer, in addition to the integrated Hospital Information Systems in the North, will achieve adoption of EHR by over 15,000 clinicians by 2015. Through integration with the provincial HIAL R1 access to OLIS and the provincial Enterprise Master Patient Index will be provided.

Milestones

Work-stream	FY 13/14	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
cGTA	cGTA HIAL and CDR live		cGTA Portal live Migration of OLIS feed from cGTA Interim HUB to cGTA HIAL complete		cGTA planning and analysis to integrate with eHealth Ontario HIAL cGTA expansion Planning kick off (tentative)	CDR and EMR integration pilot LHIN based Foundational initiatives migrate from interim portal to cGTA Portal	
cSWO		cSWO Regional Program established	cSWO Regional Viewer Live (OLIS)	Measure benefits evaluation	cSWO Regional Viewer / ONEID pilot integration complete and Wave 1 adoption complete	cSWO-HRM integration complete Regional Clinical Viewer integrated with DICS, ODB, IAR & PCR	User adoption expansion Wave 2
cNEO		Regional Clinical Viewer implemented and co-branded	cNEO Regional Program established	Single Sign On Point of Service Application integration with cNEO regional clinical viewer	cNEO Regional Clinical Viewer expansion Phase 1 complete	Clinical Viewer integrated with, DICS, ODB,IAR, CHRIS and PCR	User adoption expansion Wave 2

3.1.1.3 Differences between the Regional HIALs and the Provincial eHealth Ontario HIAL

The eHealth Ontario Health Information Access Layer (HIAL) will integrate all the services that are provincial in scope (e.g., registries, repositories, and applications), and present their services to service consumers. These EHR resources contain information for all of Ontario, and needs to be accessible by all authorized health care providers in Ontario.

The regional HIALs are similar in their architectural purpose and function to the eHealth Ontario HIAL, but their scope is different. They are focused on integration of more local/regional assets into the common province-wide HIAL resources and services infrastructure. The Regional HIALs will be used in a number of major ways.

- The regional HIALs will expose eHealth services that are regional in scope (belonging to, and pertaining to, only a given region). Regional HIALs will provide their own Communication and Common Service capabilities to integrate health information within the region.
- The regional HIALs will also expose regional variations of provincial eHealth services (via a connection to the eHealth Ontario HIAL). In these cases, the regional HIAL will expose a regional version or "flavour" of the eHealth Ontario service to that region. For example, this may be necessary if there is a need for the Regional HIAL to process the request before relaying it (this is referred to a need for "last mile integration" – an example would be a need to transform or translate the original request to match the specifications of the eHealth Ontario HIAL service). This can facilitate adoption of provincial eHealth services by allowing

regional legacy, non-standard systems to indirectly consume the standards-based eHealth services exposed through the eHealth Ontario HIAL.

"Last mile integration" is best managed by regional stakeholders, due to their familiarity with regional health care systems and their understanding of local needs, relationships, and capabilities.

It is also possible that some regionally supplied eHealth services may be of interest to the other regions. One way to provide access to these services could be to have an associated central service (hosted at the eHealth Ontario HIAL); the central service would provide a mechanism for regions to access each other's services.

Any communication between regional HIALs and the eHealth Ontario HIAL will be transparent to the requestor of the service.

The following figure shows the regional and eHealth Ontario HIALs.
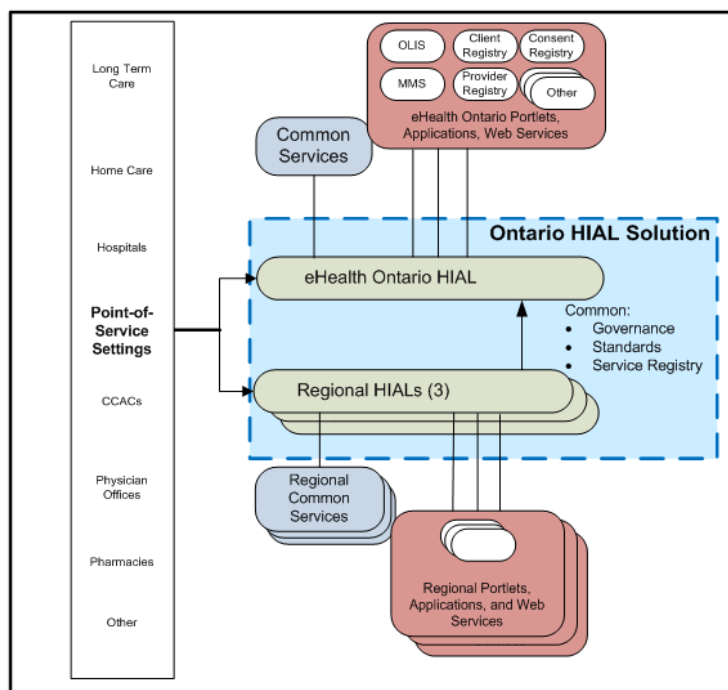
3.1.2 Access and Privacy Management Services

There are several difference components to the Access and Privacy Management Services program. As a result, this program is a dual responsibility between the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar.

Access management is a critical component of the successful EHR in that it provides secure access to eHealth applications for the ~300,000 regulated health care providers in Ontario. This service ensures that the appropriate care givers and providers are able to access the relevant information about a patient's care. In addition, a centralized approach and service for identity and access management can enable a variety of eHealth solutions from other vendors / providers and make them available broadly to both patients and providers on a provincial scale. In addition, eHealth Ontario's access management services will enable health care providers to access eHealth applications through a variety of portals with single user identification.

eHealth Ontario will provide the business processes and communications to ensure that shared patient information is authenticated, authorized and respectful of patient consent directives. As a provincial service, eHealth Ontario will collect and store consent directives from patients through the consent

management technology program. This service will allow patients to manage access to their personal health information, allowing them to determine the confidentiality of the data.

Purpose

The Identity, Access and Privacy (IAP) program will ensure that all eHealth applications can:

- Recognize and provide a single identifier for every person receiving care in Ontario, including those without a health number
- Recognize and provide a single unique identifier for every provider in Ontario, including those who belong to more than one regulated health profession
- Ensure that only authorized providers have access to electronic patient health information

Scope

The IAP program has 6 main work streams within the 2 services:

Access Management

Provincial Client Registry (PCR) will support the coordination of patient care. The registry information can be leveraged through existing technology investments including; eHealth portals, electronic medical records and other hospital information systems such as admission discharge and transfer systems. Based on unique patient identifiers, this service links multiple patient records created by hospitals and other sources allowing health care providers access to electronic health data linked to a single, authoritative patient identification record. **Provider Registry (PR)** facilitates the unique and accurate identification of anyone who provides care in Ontario or who participates in the collection, use and disclosure of personal health information. The PR will include provider data from authoritative sources by acquiring on-going data feeds for all regulatory colleges in Ontario.

Single Sign On (SSO) program ensures health care practitioners have consistent and secure access to all eHealth applications through a ONE ID credential. In addition, ONE ID will be a federation operator which allows users with accounts issued by other identity providers (ex. hospitals) to access eHealth applications hosted by multiple organizations as well as on the eHealth Ontario Portal. The provider registry, monitoring solution and consent management system will be leveraged by the ONE ID service as part of the validation of health care providers, ensuring that only the authorized health information is shared.

User Registry (UR) validates user entitlements and authorizes users of eHealth Ontario systems, which is a mandatory requirement for access. The UR will only include clients and providers in the PCR and PR. Additionally, eHealth Ontario will implement and manage role based entitlement for health care practitioner's accessing eHealth applications. Role based entitlements are stored in the user registry and leveraged by ONE ID to authenticate practitioners accessing eHealth Portal. This process allows the application of permit/decline access to ensure consistent access and privileges to eHealth applications.

Privacy Management

Consent Management Program (CMP) enables patients (and their substitute decision makers) to restrict access to personal health information (PHI) based on explicit consent directives and enable Health Information Custodians (HICs) to comply with consent requirements under the Personal Health Information Protection Act, 2004 (PHIPA). The Consent Management Technology Assets (CMTA) supports the operationalization of the CMP.

EHR-Monitoring and Control Technology Program (EHR-MCTP) will enable health care providers to fulfill their obligations under the provincial privacy legislation by monitoring all personal health information that traverses eHealth Ontario's health information access layer (HIAL). This monitoring service will facilitate the reporting of unauthorized access to personal health information in the EHR, report if a breach or suspected breach occurs, the system will alert the necessary parties and remedy the situation.

Approach

The IAP registries will take a phased approach to deployment and seamless integration with eHealth systems and regional hubs across the province. Additionally, in 2014/15 the registries will be integrating with the health information access layer (HIAL) to support provincial eHealth systems such as DI common service and to enable provincial identity and access services in the regions.

The PCR will integrate with various point-of-service systems and will be made accessible through a portlet to support patient searches by health care providers (i.e., "for clinical use"). Integration timelines for PCR will be based on Agency priorities, and will include systems such as DI Common Services. PCR is currently in the planning/requirements gathering phase to prepare for integration with the regional hubs, and is scheduled to integrate with cGTA, cNEO and cSWO over the next two years. The project is being rolled out in two phases: the first phase has two bundles (the first bundle involves the integration of CR data with EMPI and the second bundle involves the first clinical use of the system through integration with DI Common Services); the second phase will continue to support integrations with eHealth systems and introduce enhanced data quality reports.

To facilitate single sign on, ONE ID operates as an identity provider (issuing credentials directly) as well as a federation operator (allows users with accounts issued by other identity providers to access eHealth applications hosted by multiple organizations.

ONE ID currently has 42,000 registered users and eHealth Ontario is in discussions with a number of clients to establish plans for integration.

The UR will validate user credentials against the PR (i.e., to ensure a provider's license is in good standing before clinical information is disclosed to the provider). Moreover, it will ensure that the user has the appropriate permissions to access the required PHI (i.e., role-based access). UR is a support systems used to authorize access to provincial assets, such as DI Common Services and ONE ID, by updating entitlement rules to meet their specific requirements.

As part of the CMP, the CMTA will enable eHealth Ontario to receive, process and manage patient consent directives, allow health information custodians to utilize a common consent management mechanism for eHealth systems in the province and provide individuals receiving health care in Ontario with the ability to exercise additional control over the sharing of their personal health information. As of Q2 2014-15, the consent management system will be ready for integration with regional solutions as well as eHealth solutions such as DI Common Service.

As part of the MCTP, the MCTA will support eHealth systems in complying with applicable privacy laws and requirements relating to auditing and monitoring. OLIS will be the first eHealth system with which MCTA integrates.

Priority Assumptions

- In support of PCR, eHealth Ontario will receive written permission from the Ministry to proceed with the elimination of the Enterprise Master Patient Index (EMPI) Registered Persons Data Base (RPDB) data feed and replace it with the Client Registry RPDB data feed. This will reduce the number of RPDB feeds from the Ministry to eHealth Ontario and improve the data quality in the EMPI. Written permission was required by October 25, 2013 in order to maintain the project timeline as well as avoid impacting other foundational eHealth projects, such as the Diagnostic Imaging Common Service, which will be leveraging this system in Phase 2.
- In support of PCR, Ministry will approve clinical use of EMPI by Q2 2014/15 to ensure Phase 2 timelines are met. Without this authority, PCR data cannot be made available to health care providers to enable them to search for patients. If the agreements providing this authority limit clinical use by each new provider, additional approval will be required for integration projects such as eLINKs.
- In support of PCR, the Ministry will permit functionality which supports advanced search options if required by stakeholders. Without this authority, the PCR may not be able to meet all the needs of its users.
- In support of PR, the Ministry will approve use of data via the PR portlet by Q4 2013/14 to ensure project timelines are met. Without the approval, deployment of the PR portlet to support health care providers and Health Links will be delayed.

- In support of PR, eHealth Ontario assumes that the current agreements between the Ministry and regulatory colleges will allow for the use and integration of PR data within eHealth services, such as DI Common Services. If the current agreements do not cover the use of PR data with eHealth services and systems, eHealth Ontario will be required to request approval for each integration of the registry. Repeated requests for approval to use data will extend project timelines.
- In support of single sign on, the Corporate Security branch will endorse the ONE ID federation standards and policy, and stakeholders (e.g. CCO, OTN, hospitals) will buy-in to the standards and policy by Q4 2013/2014 to support federation activities with partners including cGTA. Without endorsement from the security branch and our partners, federation services will be delayed.

Risks and Impacts

- Provincial harmonization of policies and procedures will be required for the CMTP and MCTP frameworks. Without standardization, the consent and audit programs will be developed based on the cGTA model.

Milestones

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Provincial Client Registry		Phase 2 readiness		Integration with HIAL R2	Integration with cSWO	
				Integration with OACCAC complete	Integration with OLIS R4	
		Integration with EHR-MCTP		Integration with HQIC eLinks	Integration with cNEO	
				Planning with HHSC, HSN, Sick Kids, Markham-Stoufville, Grey Bruce, Royal Victoria Hospital and North Bay Regional Hospital complete	Integration with Waterloo-Wellington CCAC complete	
				~97% of hospitals contributing	Integration with Mackenzie Health/ Southlake complete	
Provider Registry				Planning with HSN, Sick Kids, Markham-Stoufville, Grey Bruce, Royal Victoria Hospital and North Bay Regional Hospital complete	Integration with OLIS R4	

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
				Integration with HIAL R2	Integration with cNEO & cSWO	
			PR Portlet GA	~95% of regulated providers persons in Ontario		
				Integration with HQIC eLinks		
User Registry		Integration with DI CS - Phase 2	Integration with HIAL R2			
ONE ID	Integration with Health Links CHRIS			OTN – ONE ID services with new applications		
	French Version Go-Live			Integration with cNEO & TOH Portals	Integration with new clients	Integration with new clients
		Integration with cGTA	CCO – Additional applications on eReports Portal	Integration with cSWO		
		Mackenzie / Southlake ONE ID services as Identity Provider and Federation Operator				
Consent Mgmt Program	Solution ready for deployment	Integration with first line of business (DI CS Phase 2)	Integration and Adoption (as clinical applications are ready)	Integration and Adoption (as clinical applications are ready)	Integration and Adoption (as clinical applications are ready)	Integration and Adoption (as clinical applications are ready)
		Contract awarded for Integration and Adoption				
EHR-Monitoring and Control Technology Program	Solution readiness	Integration with first line of business (OLIS)	Integration with other eHealth Ontario lines of business			

3.1.3 Portal Management

There are several difference components to the Portal Management program. As a result, this program is a dual responsibility between the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar.

Purpose

The Portal Management team is responsible for developing 2 core access channels to health information (i.e., portlets and web services). These two channels allow eHealth services such as OLIS or Digital Images to be exposed on ONE Portal or partner portals, such as the Ottawa Hospital portal.

Scope

The Portal Management program consists of 3 services:

- **ONE Portal** is a secure website that enables access to integrated eHealth applications such as OLIS, DPV, Oral Health Information Support System (OHISS), Electronic Live Birth Registry (eNLB), Panorama, OLIS to Patient (pilot),Portlet Services and Collaboration services. The Portal Management team is developing a one-stop shop landing page for access to all ONE Portal clinical applications such as OLIS, ODB, DPV, CHRIS (Client Health and Related Information System), IAR (Integrated Assessment Record) and Panorama.
- **Portlet services** works with other eHealth Ontario programs to build and develop web-based applications (portlets) that enable clinicians to view clinical data through any other web-based portal
- **Publication facility service** is used by the Public Health Division and Public Health Units to send important health or public health notices (H1N1, boil water advisories, heat alerts etc.) to ~70,000 health care providers using various distribution methods, including email, phone or SMS.

Approach

ONE Portal is working to increase its user base by building new portlets for eHealth Ontario assets, adding training material and providing a portal that is compliant with Accessibility for Ontarian's with Disabilities Act to improve usability and accessibility. The Portal Management team will be enhancing the ONE Portal service to allow access to its services using mobile devices. Once portlets are developed they are deployed onto ONE Portal and other partner portals.

Enhancements to the ODB portlet are required to allow for broader access outside of the 255 users at the Ottawa Hospital. This will allow eHealth Ontario to roll out the ODB portlet to ONE Portal and other partner portals.

Milestones

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Sustain-ment		ONE Portal Technology Upgrade – RFP for Professional Services	ONE Portal Technology Upgrade – Infrastructure Build – DEV, ITE1, ITE2, 1QTE1, IQTE2	ONE Portal Technology Upgrade – Infrastructure Build – Pre-production & Production Environments Complete	ONE Portal Technology Upgrade-Content and Application Migration	
	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility	On-going 24.x7 Support for ONE Portal, DPV, Portlet Services and Publication Facility

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
		Publication Facility – RFP to MERX	Publication Facility – Select Vendor	Publication Facility- Vendor Migration (this may not be necessary if same proponent wins contract)		
Build / Develop-ment		ONE Portal Redesign – Desktop	ONE Portal Redesign – Desktop completed for Production			
	ODB Portlet Readiness & Integration to ONE Portal					
	Portal Services – Maintenance Release	Portal Services Release 3.2 - Live	Portal Services Release 3.4 - Live	Portal Services Releases 3.5 - Live	Portal Services Releases	Portal Services Releases
	eHealth Services Page – ONE Portal Implementation	eHealth Services Page – ONE Portal Live				
			Develop & Build DI/CS Image Viewer Portlet	Develop & Build DI/CS Image Viewer Portlet	Deploy Image Viewer Portlet to Production	
Governance	Define eHealth Portal Strategy	Approve eHealth Portal Strategy	eHealth Portal Governance – RFP posted for Professional Services	eHealth Portal Governance - Defined	eHealth Portal Governance - Approved	

3.1.4 ONE Mail

Purpose

eHealth Ontario's ONE Mail service provides the only means for clinicians to securely exchange email (unstructured information) across clinical sites. The ONE Mail service currently has 15,000 users for its direct service, i.e., email hosted by eHealth Ontario and another 200,000 users of its partnered service, i.e., organizations who host their own email but use eHealth Ontario encryption to ensure messages can be sent to other ONE Mail users at other institutions.

Health care providers have traditionally relied on fax and courier to transmit PHI, but switching to an electronic method should result in increased speed and decreased cost to end users. While centralized data repositories like OLIS are effective for predictable data such as lab orders and results, there will always be a need for a way to send ad hoc PHI that does not fit any predefined structure. As collaboration increases between health care providers ONE Mail can offer a secure method to support engagement between clinicians.

Scope

The execution of the community eHealth Secure Messaging program involves 3 work streams:

- **Current**: This stream focuses on keeping current technologies and solutions up to date.
- **Future Technologies**: Secure messaging will review and assess the emerging technical solutions, functions and features that meet the demands of the Health care clients.
- **Vision**: Secure messaging will facilitate the role of non-structured messaging in the health care world

Approach

The eHealth Secure Messaging program is modernizing its service offerings allowing for easy and secure communication amongst care providers. Integration of the service to other applications is also a focus as it will address needs identified within the various Health Links business plans.

Mail Refresh project

The refresh project is aimed at upgrading the Agency's soon to be outdated systems to a newer version in order to provide users with features to which they are accustomed in their regular email experience. Health care providers look to Secure Messaging to continuously provide new features that will improve their work communication environment; features like Mail Tips, which provides users with the ability to quickly ensure they are sending mail to ONE Mail destinations only, or integrating multifunction printers so that "fax" type messages are travelling securely as emails. The Secure Messaging Directory will also be updated to improve the ability to search for other Health care providers and provide local copies of the directory to users

Integrated EMR solution with ONE Mail

eHealth Ontario is working with Health Links teams to deliver a pilot project through which the health care provider's EMR will be seamlessly tied to the Secure Messaging (ONE Mail) service allowing for communication with health care providers outside of the EMR application, and logging of such communication within the EMR. This solution will then be leveraged as a "standard" for other EMR solutions and will be key in integrating ONE Mail into existing clinical workflows.

ONE Mail Mobility

Health care providers' environments have changed from an "anchored" desktop communication solution to one where they expect to be mobile with immediate access to information. First and foremost was the development of a mobile solution providing mail to corporate devices by the Secure Messaging product team. With the increasing prevalence of "Bring Your Own Device", the ONE Mail Mobility project will explore a service that controls and partitions corporate data on personal devices. This will allow the Agency to protect personal health information on users' devices without interfering with their personal information.

Milestones

| Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
ONE Mail		Upgrade to Exchange 2010 server allowing enhanced functionality		ONEMAIL integration requirement built into EMR specification	Upgrade to Exchange 2013	
				All clients migrated to exchange 2010	Allow non-ONEMAIL users to access secure mail	
				Launch ONEPAGES upgrade initiative		

3.1.5 Technology Services

Summary

Technology Services manages the operation of the Electronic Health Record (EHR) and ensures that the EHR services delivered to the health care sector are secure, timely, accurate, efficient and well supported by knowledgeable professionals. This department deploys and supports underlying technologies and ensures EHR delivery partners are seamlessly integrated to provide a cohesive end-to-end service. Additionally, Technology Services is charged with optimizing EHR service delivery including financial performance, staff productivity, time to market and value realization.

This year the migration of production EHR services hosted by eHealth Ontario to the Guelph Data Centre will be completed. The Guelph Data Centre is a provincially owned asset which eHealth Ontario will use as its long-term hosting facility. The completion of this project reduces the flow of provincial funds to commercial suppliers and increases the leverage of provincial assets.

Over the past year Technology Services has built the infrastructure hosting facilities for three new major systems including Panorama, Hospital Report Manager and Connecting GTA. During this same timeframe, a project has been completed to virtualize the eHealth Ontario server environment. The virtualization of the server infrastructure enables eHealth Ontario to deliver more services in a shorter time span, with fewer resources than in a traditional data centre hosting paradigm. This virtual pooling of fixed computer assets enables more efficient usage of assets and the flexibility to dynamically divert capacity to systems when needed to maintain optimal performance. Currently 4,200 virtual servers are being supported on a base of 200 physical systems.
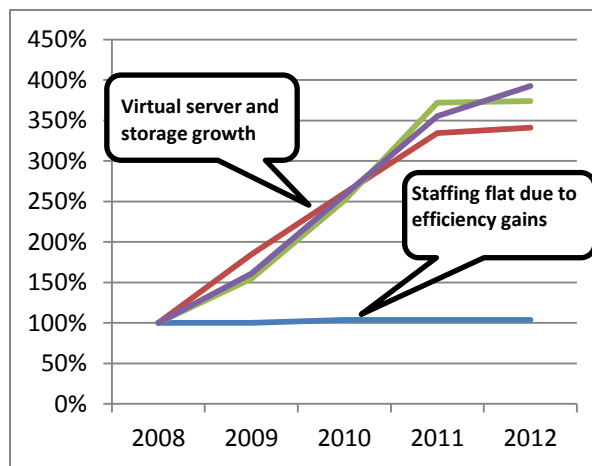
The Technology Services customer support function has met or exceeded its service level targets every month for the past 12 months.

This year also saw the completion of the eHealth ONE Network value realization program that has assisted over 3,000 clinicians find affordable internet connectivity for their health care systems. This program has reduced eHealth Ontario's operating budget by $23 million per year. The ONE Network provides high bandwidth, secure connectivity to major health care providers, including hospitals. There was a significant increase in the adoption of ONE Network services across the hospital sector. This has resulted in an overall utilization increase of this asset, as consolidated hospitals have found advantage in ONE Network's virtual campus capabilities. Additionally, this program to adopt ONE Network has enabled the decommissioning of hospital funded network services from commercial suppliers, realizing additional cost savings to these hospitals.

The future plans for Technology Services are to continue the evolution towards a complete System Integrator model to manage EHR delivery. That is, to manage all facets of EHR service delivery within the eHealth Ontario domain and its broader consortium of partners and suppliers. The consortium will enable a virtual service capacity that can be rapidly provisioned and scaled and allow for shifting of workload to support business needs such as cost and quality optimization. An example of this is the Agency's plan to consider alternative methods for delivery of corporate and non-production systems, such as commercially available cloud hosting solutions. This will allow eHealth staff to focus directly on managing high value production EHR assets. This strategy will identify the best options for fulfillment of various service support functions and will drive further cost and quality optimization.

3.1.5.1 Technology Services Program Overview

The role of Technology Services is to operate the technology environment enabling the provincial Electronic Health Record (EHR) and support of customers in the effective use of such EHR assets. This

will require evolution of the service and support functions to align with the enterprise vision of eHealth Ontario as a best in class system integrator for providing eHealth Services. Technology Services will continue to deliver high value services today and evolve to enable eHealth Ontario to meet the vision of a customer-centric, always-on (24 x 7 x 365) delivery of provincial EHR services. The two primary accountabilities of Technology Services are to deliver customer support for both technical and business issues and to maintain the availability, currency and efficiency of EHR technology assets.

3.1.5.2 EHR Delivery Context

To fully understand the requirements for meeting the service-centric high performance EHR vision, it is important to consider the distributed nature of the EHR environment.

The Distributed Nature of the EHR

The EHR environment provides authorized users the means for secure, seamless and efficient access to view and update Personal Health Information (PHI) residing in health care systems and repositories located all across the province and operated by various organizations. Technology Services is directly accountable for operating core EHR assets such as clinical repositories, system access management, registries and integration facilities including security, availability and customer support. Technology Services is accountable to ensure that the delivery of all peripheral EHR services is orchestrated to ensure a seamless user experience and technical vitality. Technical Services orchestration of EHR services across the delivery consortium of partners and suppliers is a critical success factor to the EHR.
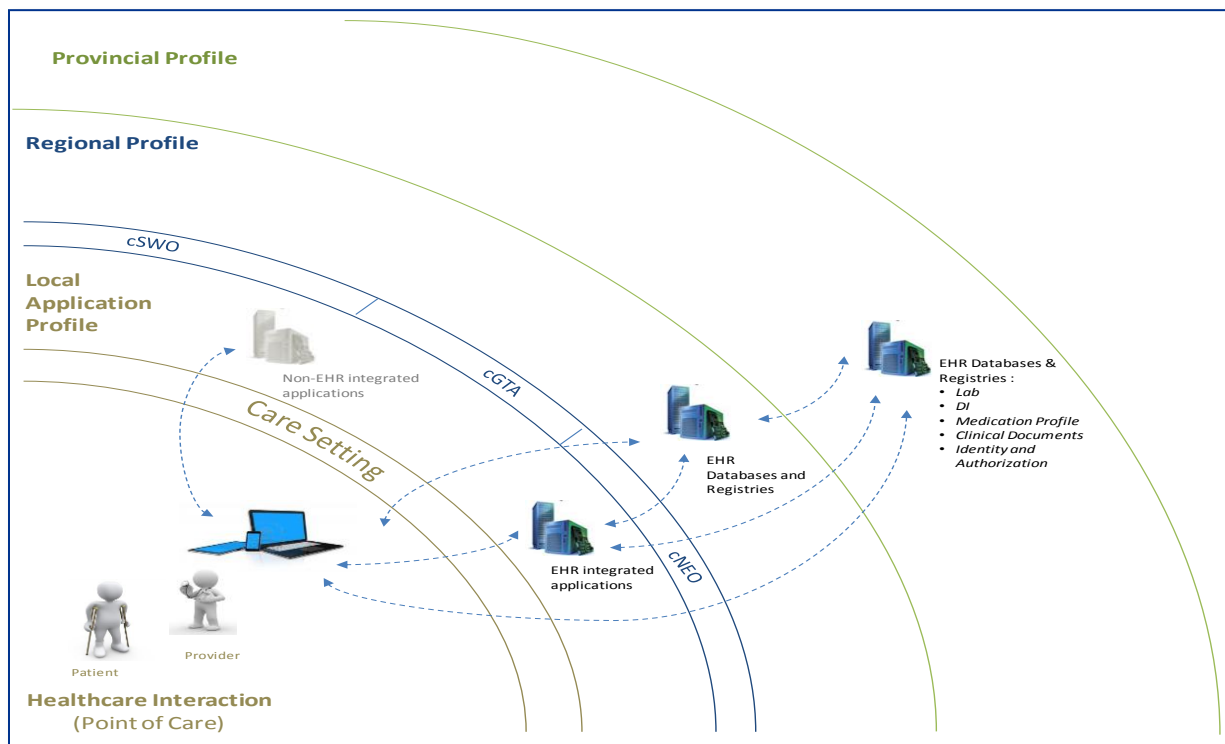
EHR Customer Support Services

Customer support services are concerned with addressing user issues, assisting users in the effective use of EHR services and fulfilling user requests. The goal of all EHR support organizations must be to resolve a high percentage of user reported issues on first contact, regardless of whether the issue is resolved by eHealth Ontario, or by an external support organization. As additional EHR systems are added to the province-wide solution, the complexity of transactions will increase and so too will the number of support organizations involved in customer support. Technology Services is uniquely

positioned to orchestrate and integrate all EHR user support organizations by setting the user support standards, communication protocols, satisfaction management and technology integration.

EHR Continuous Availability

To ensure the users of provincial EHR services can access the required information at any time, Technology Services ensures that core EHR infrastructure services are designed and implemented to be highly available. Core EHR systems are required for all user transactions and are therefore critical as any outage has far-reaching implications. The bulk of core EHR systems are hosted in eHealth Ontario data centres and Technology Services is strongly positioned to manage security, connectivity and service management within this environment.

3.1.5.3 Objectives

Establish eHealth Ontario as a best in class system integrator for providing eHealth Services, with the following four core characteristics of (a) High client satisfaction through service level attainment, (b) Quality service fulfillment, (c) Resilient and highly available services, and (d) Adaptive organization through strong governance.

Technology Services will focus on the following five objectives:

Support Program Requirements: To deliver timely, effective and secure technical and support solutions that meet the needs of eHealth Programs. This includes ensuring that EHR systems are integrated seamlessly into the enterprise technology and support model, as well as managing an agile enterprise that is adaptive when meeting requirements for growth and change.

Develop and Maintain a Customer Focused Culture: To develop and institutionalize an organizational culture which sees employees constantly striving to improve the customer experience and attain high client satisfaction.

Enable Unified End User Support: To coordinate quality EHR service fulfillment across numerous, diverse organizations and to provide customers with a simple support interface and prompt issue resolution. Transfers between organizations and multi-party troubleshooting will be efficient and transparent to customers.

Ensure High Availability of Services: To provide "always on" service from the customer perspective. This means providing services that are highly resilient, have multiple layers of redundancy and which can be rapidly recovered in the event that failure does occur.

Develop Strong Governance: To ensure that eHealth Ontario, its suppliers and external EHR delivery partners have clearly aligned accountabilities with respect to customer support and technology management and sustainability.

Provide Value for Money: To ensure that services are delivered in the most cost effective way possible. This includes delivering greater efficiency from technology assets and business delivery processes and sourcing services from external providers when warranted.

3.1.5.4 Service Integrator Model

The Service Integrator (SI) Model depicted below is the target operating model for eHealth Ontario. The Service Integrator role focuses on the central management and governance of service delivery across the spectrum of providers including in-house, partner and supplier organizations. Technical Services is accountable for the delivery of all customer and technology support to a set of agreed end to end service levels supported by service level agreements with all partner and supplier delivery organizations. The SI role includes driving innovation, transformation of service and productivity improvements provisioning and support in accordance with overall EHR governance.
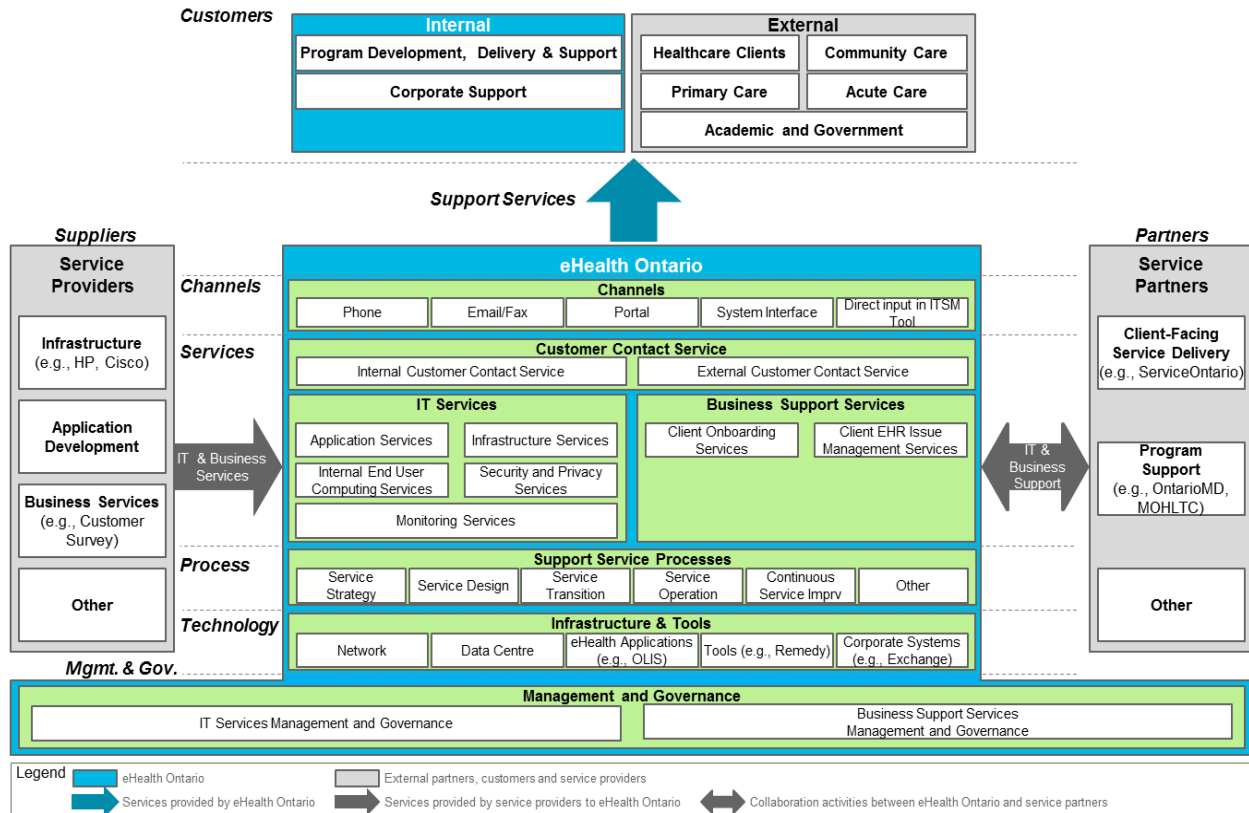
The scope of Technology Services is highlighted in the SI model above and includes managing the services and support associated with multiple delivery channels, customer contact services, IT services, business support services, and underpinning support services, including enabling infrastructure and tools.

In the context of this ABP, the focus for Technology Services is spread across two key service domains, Customer Support and Technology Management and Sustainability as described below.

3.1.5.5 Technology Services Sourcing Strategy

In the context of fulfilling the service delivery vision for eHealth Ontario of becoming a best in class system integrator for providing eHealth Services, a service sourcing strategy will be developed and implemented in a phased approach for Technology Services to provide the optimal delivery model for selected functions allowing for rapid and cost effective scalability.

The Technology Services Sourcing Strategy will consist of two phases:

Phase 1 – Customer Support Service (Q3 FY 2013/14 – Q2 FY 2014/15)

The key activities in this phase will include:

- A customer support service sourcing strategy will be implemented to provide the optimal delivery model for user support functions allowing for rapid and cost effective scalability while attaining eHealth Ontario's service delivery vision
- Obtain business case approval
- Implement the procurement process including contract signature
- Actively manage organizational change

Phase 2 – Identify selected services (Q3 FY 2013/14 – Q4 FY 2014/15)

The key activities in this phase will include:

- Define the role of system integrator and identify the impact for Technology Services
- A sourcing strategy will be defined and implemented to provide the optimal delivery model for selected services allowing for rapid and cost effective scalability while attaining eHealth Ontario's service delivery vision
- Perform opportunity assessment, impact risk and financial analysis for selected functions
- Present sourcing strategy recommendations for approval
- Execute the approved sourcing strategy recommendations
- Actively manage the organizational change as required

3.1.5.6 Customer Support

Customer support involves managing each and every end user interaction in a consistent and professional fashion, irrespective of whether the contact is being managed by eHealth Ontario or by a partner or supplier organization. The goal of customer support is to resolve issues during the first contact and for support staff to act as brand ambassadors, since their interaction with the customer provides the first impression of service. Responding to the needs of the users in a timely fashion, enables end users to achieve higher productivity while also encouraging improved adoption of provincial EHR solutions.

Currently, customer end user support is provided through the eHealth Ontario Service Centre, made up of the Enterprise Service Desk (ESD) and the Business Desk (BD), focusing on technical and business support services respectively. ESD supports external users and eHealth Ontario staff, whereas the BD primarily supports health care providers and their support organizations. Both Service Desks are staffed 24 x 7 x 365. The support structure must be scalable in order to address increases in customer contact volumes, and complexity of support requirements as province-wide adoption of EHR services increases.

A customer support service sourcing strategy will be implemented to provide the optimal delivery model for user support functions allowing for rapid and cost effective scalability while attaining eHealth Ontario's service delivery vision.

Future State

As more and more users across the province start accessing and using provincial EHR assets, there is a need to put in place a Distributed Support Model (DSM), recognizing that end-to-end services are delivered and supported by a number of service providers external to eHealth Ontario. The DSM is a framework under which a consortium of service providers delivers service in a consistent manner, orchestrated through a shared governance model. This will facilitate a seamless user experience, regardless of who is delivering the service. To enable this, all service providers will be aligned on expectations and integrated to manage interdependent services. Given that eHealth Ontario does not have the authority to prescribe an approach, it will be necessary to work collaboratively with various stakeholder groups within the health care community and operationalize the DSM to ensure effective delivery of services to the customers of provincial EHR services.

The DSM will enable a consistent user experience with the bulk of issues resolved at the customer's initial point of service interaction. To enable the user's local support organizations the DSM will have to provide visibility to real time enterprise wide EHR performance information, change management bulletins and issue resolution process guides. This will be facilitated through a shared governance model, with eHealth Ontario taking accountability for overall end-to-end service integration and delivery of provincial EHR services.

A simple example of one EHR transaction involves a clinical user at The Ottawa Hospital (TOH) accessing lab reports at eHealth Ontario. In this scenario, TOH is responsible for the user PC, local network, user authentication and local web portal while eHealth Ontario is responsible for the wide area network, OLIS portlet, patient and provider registries and lab information repository; and the contributing laboratory is responsible for the data accuracy and quality.

The proposed DSM incorporates the following key concepts resulting from stakeholder consultations and jurisdictional scans:

- **Common Triage and Resolution Function**: This is a shared function managed by eHealth Ontario that will investigate issues or requests that fall outside of the local support boundaries and then either resolve them directly or transfer the customer to the appropriate support organization. Common Triage and Resolution will act as the custodian of the request until it is completed regardless of what organization fulfills it. eHealth Ontario will be accountable for establishing this function.
- **Focus on Local Support**: If available, local support will be the first point of contact for end users. Local support may escalate cases to third party providers, however, this will not be coordinated by eHealth Ontario's Common Triage and Resolution function (Tier 1) until it is determined by local support that escalation is required (i.e., it is a provincial EHR issue). Tier 2 support will remain with the support organization that manages the technology component at issue. Current Tier 2 support of eHealth systems will continue to operate locally.
- **Governance and Service Integration Oversight**: Service integration covers a framework under which new and modified EHR services are introduced, supported and managed. This ensures all stakeholders are fully aware and can support services at the expected service levels. eHealth Ontario will be accountable for establishing shared governance and for ensuring the quality of end-to-end service delivery for provincial EHR services, regardless of how they are consumed.
- **Regional Support**: Regional Hubs will be accountable for delivering their services and users consuming such services will be supported by their own designated Service Desks. Regional Hub service providers, along with eHealth Ontario support entities, will be responsible for coordination with the Common Triage and Resolution function.
- **Use of Centres of Excellence**: Virtual resource groups providing clinical and specialized support will be resident where expertise exists and will be accessed as needed by support organizations.
- **Use of Third Party Service Providers (provincial/local)**: The DSM accounts for accessing external service delivery organizations that may be contacted for issue resolution by entities that provide support subsequent to first point of contact.
- **Scalability**: The DSM is accountable for augmenting user support capabilities to support more EHR services as they get rolled out and for handling the expected increase in demand for supporting customers without a local support channel. The current support structure will be evolved to the Common Triage and Resolution function, through arrangements with external parties for service augmentation.
- **Use of Customer Feedback Surveys:** Customer satisfaction measurement is an essential component of any support model to improve services and internalize user experience. This becomes more important in the context of the distributed support model, in which the end user will interface with one support organization although the actual service may be delivered by multiple organizations involved in the support chain.

The distributed support model construct is shown below.
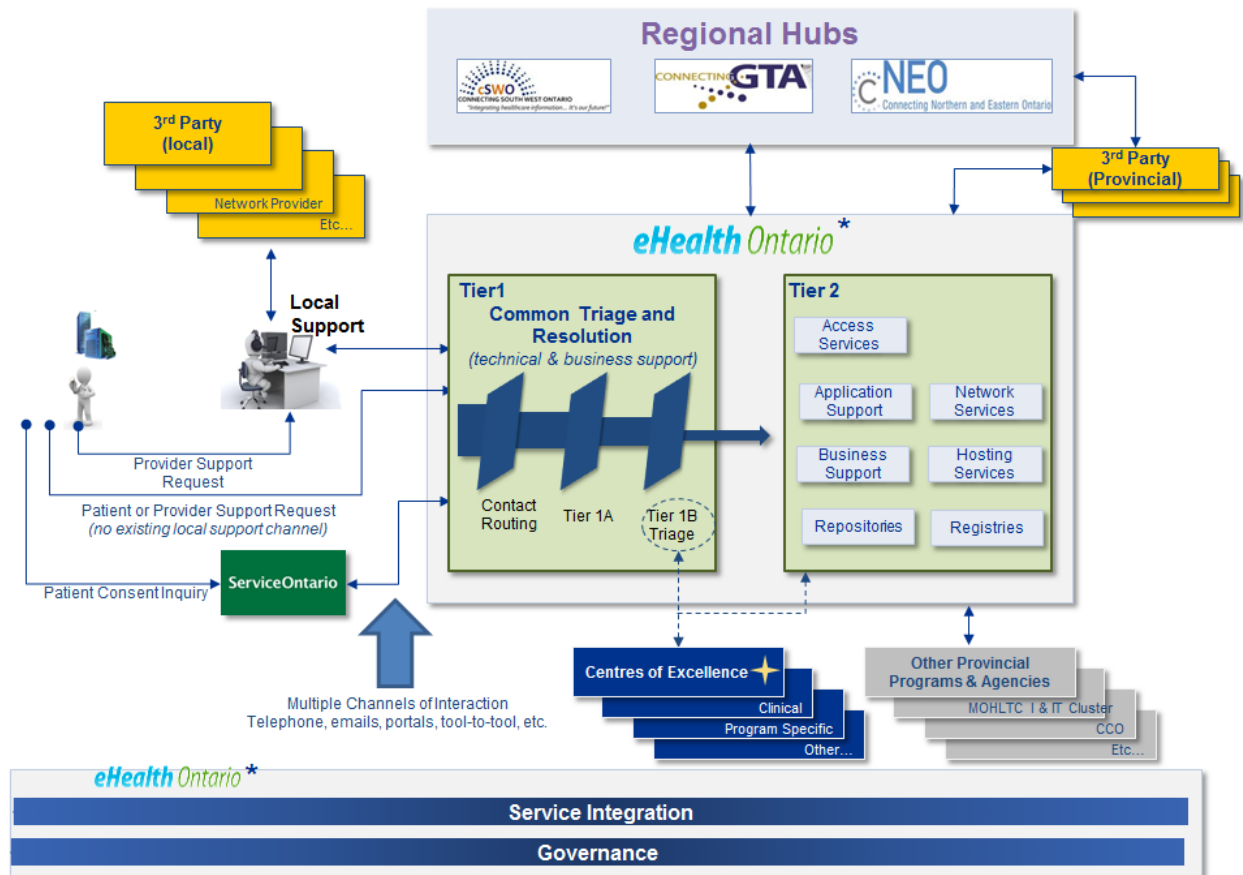
Customer Support will evolve from the current state to a future in which the Common Triage and Resolution function manages customer interactions across multiple touch points. As more customers start using the services themselves, with no local support, this becomes an increasing priority.

Roadmap to Future State

The future state Distributed Support Framework, including the required level of governance, is currently being defined. The framework will be completed this year with a planned multi-year implementation starting in 2014/15. There are three foundational components that must be put in place as the Agency evolves to the future state: (a) Establishment of support governance; (b) Establishment of Common Triage and Resolution function; and (c) Deployment of support tools required for managing end-to-end service.

- **Establishment of Support Governance**: This will be a major undertaking considering the level of consultation and agreement required with the Agency's strategic partners to operationalize the envisioned governance component. This governance for support will be a subset of the overall EHR governance being formulated under the stewardship of the Regional eHealth Program Office. The governance structure will leverage existing forums, only adding additional forums where nothing is pre-existing. The team will also work with eHealth Ontario Enterprise Architecture to ensure alignment with the proposed Service Oriented Architecture (SOA) Governance. The support framework will be shared at the highest levels to ensure there is buy-in and support from all stakeholders.
- **Establishment of the Common Triage and Resolution Function**: This activity starts with documenting the role of the Common Triage and Resolution function in detail and determining the functions and organization associated with it. Next, based on forecasted demand, service

delivery strategies will be assessed to determine the optimal way to deliver the majority of functions in a scalable fashion. The plan is to formalize the delivery structure during fiscal 2014/15 and operationalize the function during fiscal 15/16, including back office Tier 2 contact points.

- **Deployment of support tools required for managing end-to-end service**: This involves proposal and agreement to establish standards for categorizing and tracking customer interactions across the support continuum. Tools required, which provide information to the Common Triage and Resolution function, will be identified and any gaps addressed. eHealth Ontario will work with key stakeholder partners to establish a framework for exchanging information across the support tools to facilitate access to key information needed for seamless support. Once established, the requirements for support tools will be consolidated and appropriate incremental tooling acquired.

3.1.5.7 Hosting Services Technology Management and Sustainability

Hosting Services is strategic to the Technology Services mandate because this is the service that builds, operates, supports, and maintains all the EHR systems hosted at eHealth Ontario. It is a full-service application hosting that includes: data centre facilities management, computer system configuration management for hardware, operating system, database and middleware service layers, data centre networks, disaster recovery services, 24 x 7 x 365 monitoring and technical support.

Technology Services currently provides hosting for core EHR applications including; Ontario Lab Information System, Panorama, Drug Profile Viewer, Client/Provider/User Registries, Enterprise Master Patient Index, cGTA, ONE Portal and ONE ID. The availability, performance and maintenance of these systems are critical to the success of the EHR. Services such as the eHealth Portal, ONE ID, Client/Provider/User Registries and cGTA are centralized enablers of EHR transactions. That is, every EHR transaction will require one or more of these systems in order to be fulfilled. The provincial Health Information Access Layer (HIAL), and cSWO and cNEO regional HIALs will also form part of this set of services once they are constructed. Systems such as OLIS, Panorama and DPV contain clinical repositories that are the object of EHR requests. Clinical repositories are accessed broadly across the province and are also critical to the EHR. eHealth also currently provides hosting for non-EHR customer applications and eHealth corporate applications.

2013 view of hosting facilities

Hosting Services currently supports in excess of 2,500 virtual servers, 600 physical servers, and more than one petabyte of storage across three data centres. Guelph Data Centre (GDC) is a world class "Level 4" hosting facility and eHealth Ontario's primary data centre, Streetsville Computing Centre (SCC), the Agency's secondary data centre, will be closed in 2017, and Markham Computing Centre (MCC) will be closed in 2016. In addition the Agency also use data centre space and services managed by HP within MCC, known as HP Managed Space.
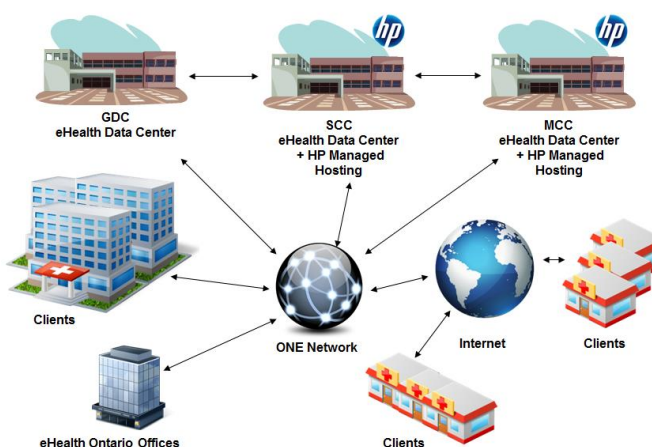
Future State

The Technology Services Hosting strategy includes the following components:

- <u>Focus on the eHealth Mandate</u> by concentrating on hosting services for core EHR assets and related services only. Additionally, Technology Services will be moving non-EHR hosted applications, including eHealth corporate services, to alternate hosting solutions or service providers to preserve eHealth capacity for EHR support functions.

- Maintain the Guelph Data Centre high-availability data centre that has a long term lease and has capacity for all the required core production EHR applications. Close the MCC Data Centre by 2015, create a geographically separate disaster recovery capability to be housed in a new secondary data centre or purchased as a service, dependent on option analysis by 2016, repatriate EHR services currently hosted by HP and close the Streetsville data centre by 2017.
- Support program hosting by delivering hosting services that meet the needs of the Program areas within the time lines required. The shared core EHR assets will be: the provincial HIAL, the Regional HIALs (cGTA, cSWO and cNEO), ONE Portal, ONE ID and Client/Provider/User Registries. These services are the integration point or enabler of all EHR requests. Technology Services is responsible to ensure these services are sustained from an availability and capacity perspective and to ensure that all systems outside of the eHealth domain are able to maintain their access to EHR assets over time. This activity will involve a carefully governed, ongoing refresh of technology across the stakeholder spectrum. Technical Services is also responsible for managing the hosting requirements of core EHR clinical repositories such as OLIS, DVP, and Panorama as their EHR integration points increase in number such as Panorama integration with EMRs and OLIS or exposing DVP and OLIS data through additional channels such as portlets. A new hosting environment will be created for the provincial HIAL and cNEO and cSWO regional HIALs in late 2015/16.
- Deliver a superior hosting product by continuing to invest in system management tools, dynamic infrastructure, hosting capacity, automation and process improvements in order to improve reliability and agility. Additionally, Technology Services will meet business requirements to develop continuous availability goals by supporting the Enterprise Availability Services program.
- Improve efficiency of investments and realize cost savings through setting technology standards, continuing to develop organizational competencies and capabilities to manage dynamic infrastructure technologies and by moving non-production systems to alternative hosting environments.
- Maintain asset vitality by ensuring that assets and technologies are refreshed appropriately to maintain ongoing operation, growth capacity and vendor support.

Future service offerings will leverage service delivery options (e.g., cloud services) where appropriate and cost-effective. Regardless of the source, service delivery will be transparent to the customer, and with eHealth as a 'one-stop shop' single point of accountability. The improved service availability and responsiveness to new and changing requirements will result in improved customer satisfaction.

2017 view of hosting facilities

Technology Services will provide the infrastructure and support services necessary to deliver resilient and continuously available environments and systems, including utilization of disaster recovery services for EHR applications. New and changed applications and technology services will be deployed quickly and effectively leveraging virtualized technologies, automation, streamlined processes and skilled resources. As well, these enhanced services will continue to ensure the secure hosting and management of high sensitivity PHI data.
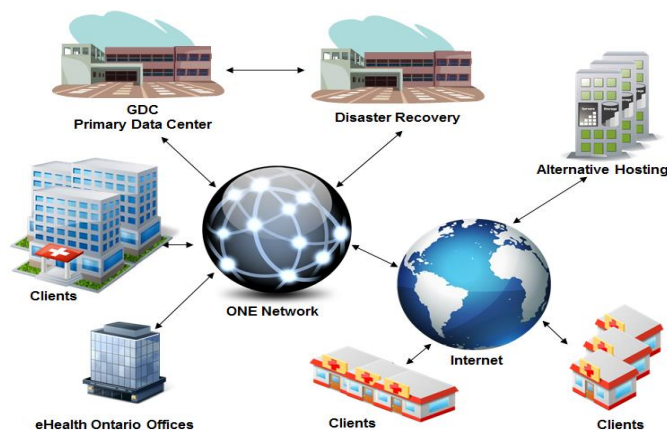
Roadmap to Future State

- **Infrastructure**: Define a new model for storage and backup as well as long term archiving at lowest cost, and then competitively acquire, deploy and migrate to the new platform.
- **Alignment with eHealth Blueprint:** Competitively acquire and deploy Enterprise Systems Management (ESM) - an integrated set of tools, processes and automation technologies that will be used to effectively and efficiently operate critical IT environments, contributing to greater IT service availability. Technology Services will work with Enterprise Architecture to

extend the eHealth Blueprint to support dynamic infrastructure as well as Enterprise Availability Services.

- **Data Centre and Hosting Strategy**: Migrate all core EHR services to the Guelph primary data centre, implement a geographically separate disaster recovery service for GDC, move all non-core EHR applications to alternate hosting arrangements and decommission MCC and SCC. Finally, Technical Services will develop a supporting strategy to define the next evolution of eHealth Ontario hosting services considering emerging opportunities such as cloud based hosting.
- **Efficiency, Agility and Cost Savings:** Alternative hosting options for non-production eHealth Ontario environments like testing and Corporate IT hosting will enable recuperation of data centre capacity for production, saving hosting costs, and increasing application development agility.
- **Sustainment of EHR Technology:** Technical Services Technology Planning function will ensure that EHR Program and client technology requirements are met through a continual assessment of emerging requirements, technologies, industry trends, and cost savings opportunities.
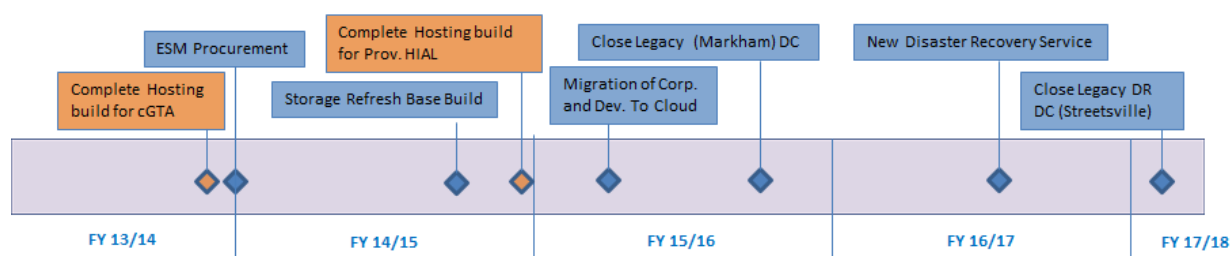
3.1.5.8 ONE Network Services Technology Management and Sustainability

ONE Network is focused on delivering high bandwidth and highly available connectivity to allow enterprise health care providers to confidently share information. Enterprise clients include hospitals, community care access centres, community health centres and LHIN offices.

ONE Network is designed to aggregate traffic regionally to optimize performance, allowing faster access to applications and data, alignment with the regional referral patterns and LHINs, and improvements to the quality of care by enabling efficient regional health information exchange.

Network Services supports clients through the following value add services:

- Network Support: Provide technical support to resolve client wide area connectivity issues ensuring that any disruption to service is minimized and service level targets are met or exceeded.
- Network Deployment: Enable new wide area circuit delivery to eligible clients, as well as managing moves, additions, changes and deletions of existing network circuits.
- Wide Area Network Design and Engineering: Provide consulting services to enterprise clients to increase utilization of existing in-service connectivity (i.e., adoption), or provide assistance with the configuration of their ONE Network service to enable new application deployments (i.e., regional HMS, remote radiotherapy).

Future State

After completion of the ONE Network Migration Program in which clients are transitioned to Internet Service Providers and remaining client network circuits are right sized, approximately 500 enterprise clients will continue to use ONE Network to exchange health care information. These services will be aligned to the broader provincial government's new network provider and this will ensure that increased value is realized through scale and efficiency. Network redundancy will continue to be implemented at critical points of care.

Roadmap to Future State

ONE Network Adoption: Network Adoption will continue to increase utilization of existing in-service connectivity, as many clients were found to be underutilizing their connections provided by eHealth Ontario. User community outreach will improve utilization of ONE Network while allowing large providers such as hospitals to add value such as customized campus environment configurations and improved network redundancy. Increased adoption of ONE Network increases the efficient use of provincial funding.

ONE Network Migration: Technical Services will continue execution of the Network Migration of remaining clients to the public internet where appropriate. Clients will select their internet service provider and will be responsible for the ongoing connectivity costs; each migrating site will receive a financial reimbursement to cover the costs of migrating to suitable commercial connectivity. Phase 3 will continue to migrate the remaining physicians, continuing care and public health unit clients to internet solutions. The use of commercial internet for eHealth connectivity provides health care clients with a broader choice of cost-effective connectivity offerings and enables accelerated access to eHealth services. Since October 2010, over 3000 clients have been migrated representing an annualized operational savings of $23M as of August 31, 2013.

ONE Network Transformation: eHealth Ontario will participate in the Ontario government Network Services Vendor Agreements. This will commence the alignment of the eHealth Ontario Network with the broader provincial government network. Approximately 500 ONE Network clients, primarily consisting of hospitals, community care access centres and data centres will be migrated from the Agency's current supplier to provincial government network suppliers over a two year period with the final network end state being reached in 2017. The output of this exercise will be a greater pooling of buying power for the province and ultimately a more cost efficient network for eHealth Ontario.

3.1.5.9 Underpinning Support Services

Security Services

The security, confidentiality and integrity of information assets and personal health information entrusted to eHealth Ontario is core to the Agency's mandate, underpinning everything that is done at eHealth Ontario. Security Services encompasses a multi-layered program that cuts across all domains of eHealth Ontario and is designed to ensure the protection of information assets against vulnerabilities and other risks.

The fundamental cornerstone for security is to ensure the trusted relationship between the Agency's services and stakeholders, assuring confidentiality, privacy protection and availability through these services. To deliver current and robust practices, the Agency will be implementing a longer-term security strategy that will unify detection, prevention, governance and infrastructure components. The information security management strategy will focus more on threats, vulnerabilities and risks.

The strategic objectives of the Security Services team enables the program to move from being device centric to user centric, while managing mobility, availability and proactively detecting cyber and other threats earlier through rapid real-time response. Actively monitoring access, vulnerabilities, and applications enables the Agency to reduce the threat landscape and attack surface and, in turn, better prevent attacks and breaches, and protect eHealth Ontario assets.

Security Services is enhancing the breadth and depth of enterprise services by adapting to emerging technologies and the needs of the business by focusing on five core service competencies:

- Investigations and forensics, focused on the creation and delivery of digital forensics, security investigations as well as leading e-discovery requirements baselining normal user behaviour;
- Security operations, focused on the delivery and monitoring of security controls as well as taking the lead on managing security incidents;
- Security assurance focused on the creation and management of security policies, defining security control requirements and ensuring compliance;
- Security governance, focused on providing security consulting to projects and initiatives to ensure security is engaged throughout the project life-cycle;

- Identity and access management, focused on the creation and maintenance of identities at eHealth Ontario and managing the end-to-end User ID and access rights to all eHealth Ontario resources.

To link eHealth Ontario with the service offerings of the Security Services group, the Strategy and Analytics group launched a new service portal and implemented automated service intake and resource allocation processes to improve access to security services and assign resources to service requests while maintaining and enhancing resource capacity planning and forecasting capabilities.

Future State

A security program was designed, approved and launched this fiscal year by Security Services. The launch of the Information Security Management System (ISMS) as the overarching framework which, coupled with the current undertakings to certify the Security Services group to ISO standards, will set the standards and policies to which eHealth Ontario will manage its security infrastructure and best practices.

As a partner in on-going compliance initiatives, Security Services will work to ensure best practices and traceability are a part of all new and existing programs.

The Security Services program going forward is critical to the broad adoption, utilization and confidence in eHealth Ontario systems and will maintain alignment with eHealth Ontario's mandate.

Roadmap to Future State

For the next two years, the Security Services team has launched initiatives to improve the Agency's security posture, enhance early detection/prevention and reduce the threat landscape with the deployment of several key initiatives. Enterprise security governance will enhance security services profile by building a security aware culture coupled with an ISO 27001 compliance program.

The largest undertaking is the launch of the Information Security Operations Security Intelligence System (ISO-SIS) which, when completed in two years, will form the core systems that will manage enterprise security for eHealth Ontario. The ISO-SIS consists of four main components which will align with the Agency's ISO certification and provide core functionality made up of the following:

- A Security Incident Event Management (SIEM) system, which will allow real-time detection, analysis and remediation of security alerts at a network level;
- A Data Loss Prevention (DLP) system that can detect a potential data breach or unauthorized transmission of sensitive data through monitoring and may be configured to block these breaches or transfers. DLP can occur while data is in-use (end-point actions), in-motion (network traffic), and at-rest (data storage);
- Corporate Identity and Access Management (CIAM) and maintenance of user ID and role based services for network and applications. The scope of this core functionality is not external or provider facing; and
- Security compliance monitoring to manage the continuous monitoring and compliance with eHealth Ontario's security policy and directives.

With the deployment of this two year plan, Security Services will improve eHealth Ontario's security posture and will be managing services to an international standard with improved reporting and governance allowing eHealth Ontario to optimize resources and technology and reduce the potential occurrence and cost of breaches, as well as protect eHealth Ontario's reputation.

Process and Tools Management

A number of support processes will be developed to underpin the Agency's primary services. These include IT Service Management (ITSM) processes and an enabling suite of technology tools. Process management and governance are pivotal to ensuring service alignment with business requirements. Process management ensures services operate effectively and efficiently to meet the needs of the business, users and customers.

The core ITSM processes such as Incident, Change and Problem Management have been implemented with evolving levels of maturity. These processes are centralized, horizontally aligned within eHealth Ontario and are implemented in a consistent fashion. They add clarity around roles and responsibilities and how the Agency approaches implementing a change or resolving an incident. The Agency's

processes are Information Technology Infrastructure Library (ITIL) compliant and supported by IT Service Management's suite of tools. This is a core component of the eHealth Ontario infrastructure. This suite of tools provides the service management associated data that enables accurate measurement and reporting of service related metrics. At eHealth Ontario, the Agency implements an average of 450 changes a month. These changes are in support of ensuring technical currency as well as providing functionality and access to critical clinical information in such systems as OLIS, DPV, and Panorama, etc.

<u>Future State</u>

Additional ITSM processes areas such as event, availability, capacity management, request fulfillment, service design and service level management will be designed and implemented, within a cycle of continuous improvement to ensure they align with business needs. Processes and procedures will be designed with proper policies, standards, and the necessary tools.

In the future, the EHR system integration will be highly complex which presents many challenges. To meet this challenge, Technical Services will have a mature and full range of tool and policy enabled processes implemented to ensure that highly integrated systems like OLIS and ONE ID can continue to evolve technically while remaining highly available to customers.

Process maturity and capability will increase year over year and be guided by targeted goals, based on assessment against the needs of eHealth Ontario. Incident duration and occurrence will be reduced and handling will be made more efficient due to improvements in the Agency's proactive ability to identify potential service threats, and to prevent occurrence through event and incident trending.

<u>Roadmap to Future State</u>

Policies and standards will be implemented for other priority IT Service Management areas, specifically event, availability, request fulfillment, and service level management. Governance dashboards tracking Key Performance Indicators (KPI's) will be completed to ensure that compliance and progress are tracked and reported. Formal approaches to address deviation will be in place.

- ITSM processes and policies will be integrated with the Event Management Tool, which will provide auto-discovery for the Configuration Management Data Base (CMDB), event correlation, provide proactive trending to improve problem management, and will reduce triage and improve both incident recovery times and change assessment.
- As support processes are formalized and deployed, the service management suite of tools will be evolved. In addition, the tool suite will be maintained in a vendor supported state, upgraded as needed. As the Distributed Support Model evolves, Technical Services will assess the best approach to provision and maintain toolsets on a case by case basis including in-house support, software as a service and other market options.
- To ensure alignment with business requirements, Service Design will get engaged earlier in the process, in the service development phase. This will mitigate risk of gaps in service supportability
- The ITSM Centre of Excellence will be fully engaged within eHealth Ontario
- Process maturity and capability assessments will be standardized and conducted within a structured timeframe using the internal assessment tool as well as conducting external maturity assessments

3.1.5.10 Milestones

Workstream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Customer Support - Business Support Services Expand the EHR Business Support Service to meet EHR needs (EHR incident, issues and complaint management)				X		
Customer Support - Distributed Support Model Sourcing options for Tier 1 Service Augmentation established		X				

Workstream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Customer Support - Distributed Support Model DSM Governance established including support tools identification			X			
Customer Support - Distributed Support Model Universal EHR shared support processes established			X			
Customer Support - Distributed Support Model Common Triage and Resolution Service procured and implemented				X		
Hosting/Network – Data Centre Enterprise Systems Management (ESM) tool Deployment			X			
Hosting/Network – Data Centre Storage Refresh Architecture, Design and Migration Strategy complete				X		
Hosting/Network – Data Centre Decommission eHealth space at Markham Data Centre					X	
Hosting/Network – Data Centre Creation of new Hosting Disaster Recovery capability complete						X
Hosting/Network – Data Centre Migration of services at Streetsville DC to new Hosting Disaster Recovery capability						17/18
Hosting/Network – Data Centre Completion of HIAL hosting build				X		
Hosting/Network – Data Centre Cloud hosting of eHealth test environments					X	
Hosting/Network – Data Centre Migration of Development and Corporate IT to Cloud						X
Hosting/Network - Network Services Begin migration of HOT circuits to new network services vendor					X	
Security Services - Security Intelligence System Complete Security Intelligence System Implementation					X	
Security Services - Security Intelligence System ISO certification completed (SIEM, DLP, cIAM completed)					X	
Process & Tools Management - ITSM Tool ITSM new tools sourced and implemented with ITSM processes					X	
Process & Tools Management - Process Conduct ITIL assessment				X	X	X

3.2   Clinical Data Management Services

3.2.1   Ontario Laboratories Information System

Purpose

Ontario Laboratories Information System (OLIS) is a centralized repository including laboratory data from hospital, community and public health laboratories to facilitate the secure exchange of laboratory data across the province. The OLIS repository can be accessed through multiple channels including, the OLIS portlet on the eHealth Ontario Portal, EMRs as well as integration with hospital portals.

Scope

The OLIS program is focused on 3 work streams:

- **Data collection**: Connecting the province's remaining laboratories to OLIS. Currently OLIS contains approximately 75% of Ontario's provincial total test order volume.
- **Data warehousing**: Expanding and upgrading the OLIS database to ensure long-term system sustainability, data integrity and service reliability. In fiscal year 2013/14, the data warehousing initiative reduced the error rate to ~0.06%.
- **Go to market**: Supporting the consumption of OLIS data by authorized users through a variety of channels, including regional hub portals.

Approach

The Agency is working with laboratories across the province to enable collection and viewing of data. To ensure that the information within the OLIS repository is robust and accurate eHealth Ontario manages the data standards, terminology and nomenclature mapping during the collection of lab data. Currently, the Agency leverages nomenclature mapping teams to help expedite the submission of data into the Agency's repositories, while ensuring the quality of the data. In addition, eHealth Ontario provides the Ministry with data quality metrics which are used to determine community lab funding. This data completeness funding model has led to a significant reduction in reporting errors, and increased the quality of data within the repository.

At present, almost 70,000 healthcare professionals have access to OLIS for clinical purposes. In 2014/15 the OLIS program will be further leveraging regional solutions to expedite the adoption of the repository. In the cSWO hub, OLIS is integrating with the regional ClinicalConnect viewer, via Hamilton Health Sciences Centre. In cNEO, the OLIS program is integrating with the Health Sciences North viewer which will provide OLIS access to 22 hospital sites within the region. Additionally, eHealth Ontario will continue to provide OLIS access to community practitioners through EMRs. In 2014/15, OLIS will be expanding access to OLIS data to specialty groups, including long-term care providers, pharmacists and midwives. The program will also be conducting benefits evaluation pre and post adoption.

Priority Assumptions

- All remaining labs must be engaged in a data collection project by September 2014 to ensure the March 2015 target of 85% is met.
- Release 3.2 proceeds as planned with an expected completion date of September 2014. If delayed materially, there may be significant impact to the performance and scalability of OLIS, considering the high rate of planned adoption and associated increase to volume of data.
- Prior to March 2015, a sustainment funding model will be implemented to support the ongoing contributions/participation of the registry and repository stakeholders (provider registry, client registry, OLIS, DI).

Risks

- A minimum of 6 months lead time is required before sites are able to contribute data into the repository. If data collection projects are not started 6 months prior to the scheduled go-live, the data collection percentages will not be achieved.

- Mitigation: Continue to work with other labs in the meantime to ensure that there is optimal opportunity to reach/exceed 85%
- If Release 3.2 is delayed materially, there may be significant impact to the performance and scalability of OLIS.
- Mitigation: Thorough communications plan to manage potential degradation to service from remaining on 32 bit infrastructure as well as reassessment of adoption timelines.

Milestones

Approximate percentage of OLIS repository completeness, broken down by fiscal year:

- FY 2013/14: 74%
- FY 2014/15: 85%

The project originally committed that the OLIS repository would be 100% complete by March 2015 however, competing projects and laboratory information system upgrades in the province have prevented OLIS from initiating projects within a time frame that would allow for repository completeness by FY 2015. Additionally, participation in the OLIS repository was not provincially mandated as proposed in 2011. As a result, the OLIS program was required to compete with other projects and priorities, and the completeness percentages have been shifted.

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Data collection		All remaining labs must be engaged in a data collection project by September 2014 to ensure the 95% target is met		~85% of lab tests (community/ public/ hospital) collected	~95% of lab tests (community/ public/ hospital) collected ~ 90% of lab tests collection by December 2015	Develop and socialize adoption of standards and best practices for maintaining EHR data
	Data collection complete for initiated for LHIN 3	Data collection for LHIN 13 and LHIN 2 complete	Data collection complete for	Data collection complete for LHIN 10, LHIN 11 and LHIN 14	Data collection complete for LHIN 3 and LHIN 4	Increase linkages to patient records through interfacing OLIS with the provincial client (PCR), and provider registries
Data warehou-sing		OLIS software release 3.2	OLIS backend database plans finalized	OLIS software release 3.3	OLIS upgrade work streams complete	Integration with HIAL R2
Go to market	Deliver roll out plan for specialty groups: long term care, pharmacy, and midwifery	Conduct post-OLIS benefits and evaluation for LHIN 2	Initiate project for integration of OLIS to Public Health Lab viewer Panorama	Complete post-OLIS benefits and evaluation for connecting Greater Toronto Area (cGTA) sites and Cancer Care Ontario (CCO)	Go to market solutions in place for all LHINS and electronic medical records (EMRs)	Expand rollout of Viewer solutions across regional viewer solutions

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
						Complete post-OLIS benefits and evaluation for adopted sites and EMRs

3.2.2   Diagnostic Imaging

Purpose

eHealth Ontario's Diagnostic Imaging (DI) program now delivers secure electronic access to a patient's diagnostic images and reports to approximately 3000 health care providers monthly across Ontario. This capability is providing physicians with faster access to patients' x-rays, MRIs and other diagnostic images resulting in a faster treatment.

The diagnostic images and corresponding reports are stored in a regional repository from which they can be retrieved in digital format. The program will build on this accomplishment through the DI common service initiative. The DI common service initiative will increase access to reports and subsequently images by implementing provincial sharing capabilities to all hospital and community based health care providers.

Scope

The DI program consists of 4 major work streams:

- **Hospital repositories**: Supports 4 regional initiatives for the consolidation, storage, and retrieval of diagnostic reports and images from all hospitals in Ontario, representing approximately 60% of the province's total DI information. The hospital repositories are complete as of September 30, 2013.
- **Diagnostic imaging common service**: Provides access to and sharing of, diagnostic information across DI-r (Diagnostic Imaging Repository) boundaries, thereby supporting the sharing and viewing of images and reports across Ontario, not just within the originating region, but also across regions to hospital and community-based providers
- **Independent health facilities (IHFs)**: Extends the secure system to include 3.4 million images and reports produced in digitally-enabled IHFs, representing approximately 40% of the total IHF DI volume
- **Emergency Neuro Image Transfer System (ENITS)**: An operational project that allows the electronic sharing of head and spine CT and MRI scans across the province for emergency neuro consults to neuro specialists, including all 91 neurosurgeons and all 16 Ontario Telemedicine Network (OTN) Telestroke neurologists.

Approach

eHealth Ontario funds the development, operations and implementation of repositories through transfer payment agreements and provides governance and oversight. Moreover, eHealth Ontario monitors progress against standards and requirements established by both eHealth Ontario and Canada Health Infoway.

Through this approach, 100% of the province's hospital PACS (Picture Archiving and Communications System) hubs have been connected to the four regional repositories. In 2014/ 15, the focus of the DI program will be on developing channels through which clinicians can access diagnostic records with the tools best suited to their work practice. Information will be made available to hospital and community clinicians initially through ONE Portal, with viewer and EMR-based access to follow.

Priority Assumptions

- Receive Ministry approval to use Provincial Client Registry (PCR) for clinical purposes in support of the DI Common Service initiative.

- In support of the DI common service, the program assumes that the DI-rs will be ready to integrate with the eHealth Ontario assets, and to have the necessary participation agreements in place to enable sharing. Participation agreements have been sent to hospitals and are in process of being received by eHealth Ontario.
- Availability of Hydro One circuits by September 2014 for additional IHFs. Without these circuits, the IHFs will not be able to connect in FY 2014/15.

Risks

- A plan for ongoing sustainment funding post FY 2014/15 will be required in order to allow for the continued operation of the DI-rs.
- There are a number of internal and external dependencies for the DI Common Service initiative including the implementation of the cross-enterprise document sharing (XDS) registry, repository, Provincial Client Registry (PCR), and DI-r readiness. Delays related to these dependencies have impacted the schedule of DI Common Service.

Milestones

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
Diagnostic Imaging Common Service	Go-live - Integration of NEODIN DI-rs to DI Common Service for report access.	Go-live - Integration of HDIRS, SWODIN, and GTA West DI-rs to DI Common Service for report access.	Operations	Operations	Operations	Operations
	Transition to Operations	Transition to Operations		Go-live of access to images	Go-live of EMR-based access to reports and images	
		Provide hands-on training to users				
		Post Go-Live support to users				
Indepen-dent Health Facilities	1.5 million exams captured in DI-rs	1.5 million exams captured in DI-rs	2.4 million exams captured in DI-rs	3.4 million exams captured in DI-rs		
				Project close-out activities		

3.2.3 Medication Management

Purpose

The original approach of implementing the medication management strategy through a provincial drug information system (DIS) is being revised as the DIS procurement did not result in a successful vendor to provide the solution within the approved time and cost estimates.

The Ministry and eHealth Ontario are now developing an approach that will achieve the benefits outlined in the strategy through leveraging existing provincial assets and focusing on phased

implementations. The Ministry will be taking the lead role in defining the strategy and overseeing execution, with eHealth Ontario providing support as requested.

The strategy is being renamed from Medication Management System (MMS) to Comprehensive Drug Profile Strategy (CDPS).

Scope

The revised approach to the medication management strategy will continue to focus on delivering value to clinicians through the following functions:

- **Comprehensive drug profile**: Provide clinicians access to medication histories currently available through provincial assets such as the Health Network System that are easily accessible at the point of care.
- **Drug utilization review**: Introduce Drug Utilization Reviews (DUR) that produces alerts based on the medication histories.
- **Electronic transfer of prescription**: Automate the generation, authorization and transmission of prescriptions from the prescriber to the dispenser, including collaboration tools to support clarification and consultation on clinical decisions.

Function	Original Goal	Refresh Goal
Comprehensive drug profile	All drugs, all people across Ontario; building history from ePrescribing scripts.	• Use HNS stored data (ODB clients, social assistance and high drug costs recipients, and all narcotics prescriptions), with seven years of online history, as a source of history for prescribers.
Drug utilization review	Integrate with Electronic Medical Record (EMR) software, with all drugs accessible over time.	• Integrate over time with EMR software, with all drugs in HNS accessible over time.
Electronic transfer of prescriptions	All drugs, all people across Ontario; building centralized database capturing all prescription activity between prescribers and pharmacists.	• Validate strategy. • Determine costs and select best value for money initiative(s). • Implement beginning with proof of concept initiative(s) to confirm viability.

Revised Approach

Since the decision on the DIS procurement, the Ministry and Agency have re-focused collective efforts on delivery of the core strategic benefits that motivated the Medication Management Program (MMP). This is expected to be accomplished through 2 separate work streams:

- Leverage existing ministry data holdings in the Health Network System (Ontario Drug Benefit and Narcotics Monitoring Data) and infrastructure assets
- Validate work done to date on the ePrescribing strategy, select best value for money initiative, and begin with proof of concept/pilot initiatives to confirm viability

In both streams, the Ministry and Agency will fully leverage existing assets, partnerships and knowledge available to deliver high value functions an incremental fashion that also enables the long-term, integrated roadmap. Opportunities to be considered include:

1. Leverage existing ministry data holdings in the Health Network System (Ontario Drug Benefit and Narcotics Monitoring Data) and infrastructure assets.

- Make available HNS data to a broader range of clinicians
- Expand use of existing tools and leverage other project work to broaden availability to ODB seniors', Trillium, and social assistance recipient data

    – Expand DPV access in facilities where it is currently deployed and to other clinicians

- Extend access to HNS data through the regional HIALs, and through the OntarioMD portal, and potentially other portals that are used today
- Integrate the data with clinician EMRs
- Determine how the data could be used for local drug utilization review

- As the policy is approved for expanded use of Narcotics Monitoring data and all dispensed drugs, this would 'come online'
- Explore opportunity to leverage immunization data
- Support existing point-of-care tools like DPV: The Agency currently provides business and technical support services to the Ministry, health care organizations and end users of DPV. These services include maintaining a helpdesk e-mail account, coordinating investigations of privacy and data accuracy issues and providing the two viewing environments (i.e., the DPV application in ONE Portal and the ODB drug claims history portlet). Rapid increase in adoption and use of DPV in hospitals demonstrates the high value of dispensed histories to support the care process. Extending access to additional areas within the hospital such as outpatient and hospital affiliated care centres that serve a high percentage of patients captured by ODB will be investigated and implemented.
- Enable access of dispensed histories from HNS to the regional connectivity projects through the provincial EHR integration assets
- Expand access to ODB dispensed drug histories through provincial integration assets: The Agency has invested in HIAL and portal technologies to enable access to the drug histories through the ODB portlet. This technology will be upgraded to provide early access of dispensed drug histories in community settings for drugs captured by Ontario Public Drug Programs claims adjudications system. It can be made available to any external clinical organizations that have existing portal technology in place. The business and technical support services used for the DPV application can be extended to provide these services to portal users as well as DPV users. Further analysis of expanding access to the ODB dispensed drug portlet will include a detailed assessment of resources and time required for, and privacy, security and strategic impact of, completing upgrades to the ODB portlet and deploying the portlet to additional community health care settings.

2. Validate work done to date on the ePrescribing strategy, select best value for money initiative, and begin with proof of concept/pilot initiatives to confirm viability

- Validate with stakeholders the best approach for ePrescribing, estimate costs, and select the best value for money initiative(s) for initial proof of concept/pilot initiatives in clinician environments
- Part of this validation will be to reference successes from other jurisdictions and Canada Health Infoway recommendations on best practices
- Continue the EMR proof of concept currently underway with two EMR software vendors pending confirmation of the scope of functions being validated
- Define one or more pilot projects for electronic transfer of prescription: MMP will continue to work with the Ministry to develop one or more potential pilot projects for electronic transfer of prescriptions that are limited in scale, utilize EMR prototype activities and existing infrastructure assets and align with government policy priorities.

MMP will continue to constructively engage key stakeholders in the development and implementation of these initiatives through working groups established to inform requirements development, including forums for professional regulators, clinicians, pharmacy operators and vendors. The Agency will work with the Ministry on a communications strategy for these stakeholders and will make necessary adjustments to its engagement approach as the strategy going forward is confirmed.

Assumptions

The overall approach outlined in the previous sections rests on a number of assumptions, including that:

- Existing Ministry assets (e.g., HNS) can be leveraged as part of a revised approach to the MMP and that the Ministry will have the resource capacity to participate in such activities

- The model established for data sharing between the Ministry and Agency (e.g., populating the client registry) could be extrapolated to other kinds of data (e.g., ODB data) as a potential option for consideration going forward

3.2.4 Access and Privacy Management Services

There are several difference components to the Access and Privacy Management Services program. As a result, this program is a dual responsibility between the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar.

See page 30 for program details.

3.2.5 Portal Management

There are several difference components to the Portal Management program. As a result, this program is a dual responsibility between the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar.

See page 35 for program details.

3.2.6 Physician eHealth

Purpose

The Physician eHealth program's goal is to broaden and accelerate electronic medical record (EMRs) adoption by community-based clinicians in Ontario and to provide enhanced clinical value through integration eHealth offerings such as OLIS and hospital report solutions.

Scope

The program is divided into 5 broad work streams:

- **EMR adoption**: eHealth Ontario has set an ambitious target of having 12,000 community-based clinicians (including Association of Ontario Health Centre (AOHC) members and nurse practitioner-led clinics) enrolled in an EMR program by March 31, 2015, representing more than 10.5 million Ontarians.
- **EMR specification and certification**: eHealth Ontario uses EMR specification releases to ensure the latest functionalities are introduced and that interoperability standards are in place to support clinician, Agency and stakeholder needs, while still enabling innovation and product enhancement to occur at the vendor and practice levels. The core EMR specification will begin to focus on data quality and data standards, which are central to supporting information sharing and information management. The Application Service Provider (ASP) EMR marketplace in Ontario will be opened to allow certification of new ASP EMRs entrants / providers – supporting a broader strategy to facilitate / expedite delivery of provincial eHealth offerings.
- **EMR integration projects**: A number of EMR integration pilots are funded by the program to test concepts for future specifications with the objective of enhancing the value proposition associated with implementing EMRs. Current and proposed pilots include:

  - OLIS practitioner query: This pilot will investigate opportunities for enabling the automated delivery of lab reports from OLIS to EMR-enabled clinicians. This functionality would eliminate the need for clinicians to maintain multiple lab interfaces and provide a single interface for accessing more comprehensive lab information.
  - Standard EMR integration model: With an increasing amount of patient data being collected and stored in EMRs across the province, the need for a common method of extracting and distributing EMR data is apparent. The Program will establish and pilot a data extract solution, that uses provincial assets, and then publish the common interface in a future EMR specification.
  - Diagnostic imaging: With 100% of hospitals, and a growing number of independent health facilities (IHFs), contributing diagnostic images (DI) and associated reports into

the province's DI repositories, there is a significant opportunity to leverage provincial assets (i.e., DI-common services and HIAL) A pilot is being pursued to establish and validate interface specifications and requirements to enable the distribution of DI reports to EMRs and the ability to search for DI reports directly from EMRs.

- Better Outcomes Registry & Network (BORN) Ontario: This project investigates how prenatal clinical guidelines and associated forms can be integrated within an EMR, offering decision support based on workflow and data entered.
- Clinical guidelines / tools: The Program is working collaboratively with MOHLTC to make provincially-endorsed clinical guidelines available clinicians, via an EMR, and in a manner that is supportive of practice workflows.

- **OLIS patient query deployment**: Based on recent successes in deploying the OLIS patient query within the field, the program will continue to expand the number of clinicians able to search, access and retrieve comprehensive lab results from this key provincial asset. The objective remains to deploy OLIS connectivity to all EMR-enable clinicians during the program's mandate.
- **Expansion of hospital report distribution solutions**: Hospital report distribution solutions (e.g., HRM, POI and ClinicalConnect) enable the electronic transmission of hospital records (e.g., discharge summaries) to the patients' EMR records. This enables primary care providers to view hospital reports within minutes versus days or even weeks under other traditional distribution methods. Plan for integration and migration of hospital reporting solutions to the provincial HIAL is in place to populate provincial and/or regional Clinical Document Repositories (CDRs) for report delivery to EMRs.

Approach

The Physician eHealth program has partnered with OntarioMD, Association of Ontario Health Centres (AOHC) and other stakeholders to help deliver the program's mandate.

In 2014/15, the program will work collaboratively with stakeholders to put forward a strategy and plan for how the province may continue to promote and support community-practice transformation beyond March 2015.

The program will also conduct an EMR benefit study to investigate how EMR adoption impacts health care quality improvement and chronic disease management.

Priority Assumptions

EMR Adoption

- November 2013, eHealth Ontario Board of Directors approves Association of Ontario Health Centres (AOHC) project extension
- Upcoming Physician Service Agreement negotiations continue to promote and advance EMR adoption

EMR Specification

- Physician eHealth Council endorses and approves proposed EMR upgrades / interfaces / etc.

EMR Integration Projects

- EMR vendors have the needed capacity/expertise to support integration projects
- OLIS practitioner query business case is approved and eHealth Ontario is permitted to move forward
- eHealth Ontario's agreement with the Ministry supports the expansion of the OLIS Practitioner Query to EMR-enabled clinicians
- Ministry is able to provide endorsement(s) of clinical guideline(s) for inclusion within EMRs
- eHealth Ontario is permitted to deploy OLIS Practitioner Query

Hospital Reports

- Legal framework is in place to enable hospitals to contribute reports via a provincial HRM offering
- OntarioMD has the needed capacity to meet targets

- cGTA connects hospitals to HRM in a timely fashion
- cNEO and cSWO establish the necessary capacities and infrastructure to meet TPA objectives
- EMR vendors have the needed capacity to support hospital report deployments / training at the practice and provider levels
- If required, funding will be offered to EMR vendors to connect clinicians to the HRM offering

OLIS

- Continued engagement of EMR vendors to support deploy OLIS

Milestones

Work-stream	Q1 14/15	Q2 14/15	Q3 14/15	Q4 14/15	15/16	16/17
EMR adoption	11,040 community-based providers enrolled	11,190 community-based providers enrolled	11,400 community-based providers enrolled	11,650 community-based providers enrolled	12,500 community-based participating in eHealth	14,000 community-based participating in eHealth
	9,750 community-based providers adopted an EMR	10,100 community-based providers adopted an EMR	10,500 community-based providers adopted an EMR	10,950 community-based providers adopted an EMR	11,700 community-based providers adopted an EMR	12,300 community-based providers adopted an EMR
CHC/NPLC EMR adoption	69 AOHC member centres have adopted an EMR	76 AOHC member centres have adopted an EMR	All 90 AOHC member centres have adopted an EMR			
		All 26 NPLCs have adopted an EMR				
EMR Maturity	4,000 participants moving forward with enhanced use program	4,500 participants moving forward with enhanced use program	5,000 participants moving forward with enhanced use program	5,400 participants moving forward with enhanced use program		
				Post-2015 EMR strategy with OMA established		
OLIS deployment	5,800 community-based providers deploying OLIS	6,100 community-based providers deploying OLIS	6,350 community-based providers deploying OLIS	6,600 community-based providers deploying OLIS	7,000 community-based providers deploying OLIS	9,000 community-based providers deploying OLIS
Expansion of hospital report solutions	3,300 community-based providers able to receive reports	3,600 community-based providers able to receive reports	3,900 community-based providers able to receive reports	4,200 community-based providers able to receive reports	5,200 community-based providers able to receive reports	6,200 community-based providers able to receive reports
# of Ontarians covered under an EMR	~ 10 Million			~10.9 Million	~11 Million	11 Million+

3.2.7 Consumer eHealth

There are several difference components to the Consumer eHealth program. As a result, this program is a dual responsibility between the Operations and Integrated Network Services pillar and the Clinical Data Management Services pillar.

Consumer eHealth

The establishment of a Consumer eHealth strategy with MOHLTC will be the key driver for eHealth Ontario's Consumer eHealth activities. eHealth Ontario's main focus will be to establish a platform for innovation that enables health care organization to successfully deploy consumer-oriented products / services that can readily and securely integrate into the ehealth space.

eHealth Ontario will work with stakeholders from all areas including clinicians, hospitals, private sector organizations, and patients and their caregivers. Leveraging existing and planned future assets of these groups will ensure greater adoption and usage of consumer offerings maximizing positive health outcomes and controlling development and operating costs.

The following are the key focus areas for Consumer eHealth program activity in 2015/16:

- Establish a Provincial Reference Model that will help guide the integration of sponsored Consumer eHealth offerings
- Deploy the Provincial Reference Model with at least one sponsored applications (e.g. OTN's Remote Patient Monitoring offering)
- Promote the Provincial Reference Model with HSPs and other organizations with Consumer eHealth aspirations
- Work closely with key stakeholder groups (e.g., clinicians, HSPs) to ensure architectural alignment
- Encourage the development of services leveraging common standards (e.g. remote patient monitoring, messaging, scheduling)

Acute Care Consumer eHealth Pilots

Working closely with Mt. Sinai Hospital to deploy a Consumer eHealth offering that will enable patients to securely access and manage their own medical records, and to:

- Evaluate the benefits from different perspectives – the patient, the family, the provider, and the system
- Contribute to a provincial strategy

Maternal Wellness

Partnering with Better Outcomes, Registry and Network (BORN), Consumer eHealth will implement the O-Mama Proof of Concept Project to allow:

- Patient access to their own health information as well as access to educational antenatal information and pregnancy resources and guidelines to support shared decision making
- Provider push of reminders associated with their pregnancy care

Mental Health

In alignment with the Ministry of Health and Long Term Care on clinical mental domain in focus (e.g. depression, addiction, prevention, treatment and follow up), the Program will partner to with a recognized organization to define:

- Patient-Provider interaction and push notifications regarding follow ups
- Provide contextualized education materials, and capture Patient's input regarding their status

3.3 Architecture, Standards and Planning

3.3.1 Our Role in the Agency

The Architecture and Standards group at eHealth Ontario supports the delivery of Ontario's eHealth Blueprint by providing internal architectural governance, blueprint stewardship, interoperability standards, and advocacy services to internal and external stakeholders, and delivering architecture and standards services to Program areas and stakeholders. As a team we are responsible for the implementation of the eHealth Blueprint, which means we work with all eHealth programs such as Diagnostic Imaging and Picture Archiving and Communications, Identity, Access and Privacy, Ontario Laboratory Information Systems, Physician eHealth, Medication Management Program, and delivery partners. We also support registries, repositories, applications, and many other projects within the Agency.

Our team works in various capacities across the agency:

Architects understand how all the parts of the Blueprint fit together, so they work on various programs and projects across the agency. Architects who work in the areas of business, information, and privacy & security architecture are called **Enterprise Architects**.

Priority projects are often assigned an architecture resource who helps ensure the project will fit with the other EHR pieces and ultimately be successful. These resources are typically referred to as **Solution Architects or Infrastructure Architects**. Every system in the Blueprint has a Solution Architect assigned to it. Solution Architects provide a suite of services from initial solution design to ongoing support to the eHealth Programs responsible for the system.

Availability Services Architects provide an integrated view of architecture to ensure that solutions are built to deliver a high degree of operational continuity.

The eHealth **Standards** Team focuses on the interoperability and stakeholder engagements needed to sustain a project through the development lifecycle. There are several types of standards required for the EHR, and this team works with the projects to select the most appropriate one.

3.3.2 Our Role in the Province

Going about addressing the challenges of implementing an EHR in an independent and disconnected manner is a sure recipe for failure. There is a need for an overarching framework with a set of standard target architectures, business services, capabilities, foundational components, applicable standards, principles and decisions for collaboration and discussion among stakeholders participating in the evolution of an interoperable EHR.

The Ontario eHealth Blueprint defines what the EHR will be, and provides a description of the solutions associated with it and how it will be realized. It is a unifying framework for describing the business, information, systems and technology elements of eHealth in Ontario. It provides a standardized taxonomy and common semantics model for describing Ontario's eHealth architecture. It describes architectural principles and patterns that will be used to deliver EHR solutions, as well as key foundational principles – such as compliance with privacy and security, collaborative governance, regulations, policies, standards, and federation. This will help clarify roles and responsibilities and provide the framework needed to innovate locally while still aligning with the provincial directions. The blueprint will also help eHealth Ontario's delivery partners and solution vendors in defining their product development roadmaps.

3.3.3 Objectives

Our vision is to establish an EHR Architecture and Standards Centre of Expertise. Architecture and Standards established six objectives that will help us achieve this vision:

Program Support: Deliver timely and effective architecture and standards that meet the needs of eHealth Programs. This includes ensuring that EHR systems are designed, built and maintained according to best practices in order to deliver a range of clinical and system wide benefits.

Guidance: Establish the EHR blueprint and supporting frameworks, methodologies, and templates, to ensure best practices are applied to all Architecture and Standards products and services.

Shared Learning: Provide education and knowledge transfer to ensure eHealth staff and stakeholders apply best practices, make informed decisions, and ultimately use our products and services in support of efforts to establish Ontario's interoperable EHR. This also includes constant learning from our experiences in order to evolve our products and services.

Governance: Involve the right people in decisions that affect EHR architecture and standards. This includes actively engaged governance bodies, institutionalized decision making practices, and effective coordination.

Measurement: Establish KPIs that help us measure progress against our roadmaps and ultimately reinforce our core principles and processes in our day-to-day activities.

People: Ensure that we attract and retain high-quality individuals that share our passion for establishing Ontario's EHR to help us with each of the above objectives.
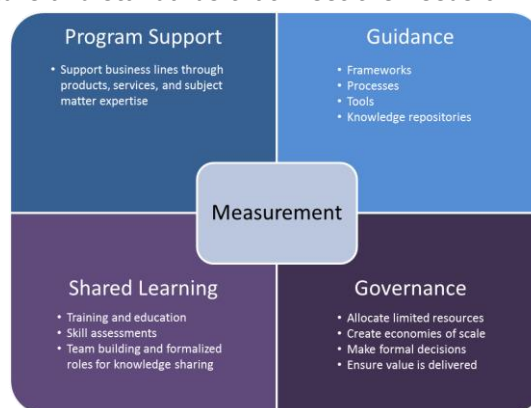
3.3.4   Future State to FY2016-17

3.3.4.1   Architecture Program Office

By FY 2016-17, the A&S Department will be seen as a centre of expertise for EHR architecture and standards both within the Agency and the Province at large. The A&S Department will be positioned to provide a suite of shared services to internal and external stakeholders to ensure EHR systems are properly designed, implemented and operated. The Architecture Program Office (APO) will become the single point of entry for all architecture and standards related requests for information and services and will coordinate department resources to ensure services are delivered efficiently and meet or exceed stakeholders' expectations.

Architecture and Standards services will be available to internal and external stakeholders, and will be delivered through a federated approach with centralized coordination by the APO. Example services include:

- Advisory Services (e.g. blueprint alignment consultation, gap/fit assessments, etc.)
- Development Services (e.g. create integration architecture, interface standards documentation, etc.)
- Review Services (project check point documentation review, RFP evaluations, etc.)
- Support Services (release planning, implementation support, capacity planning, etc.)
- Education & Training Services (education needs assessment, customized training sessions, etc.)
- The APO will also be responsible for planning and reporting against KPIs, to ensure the A&S Department is delivering quality products and services that meet the needs of our stakeholders.

APO Roadmap

FY13/14   APO positions resourced. Establish the service intake, delivery coordination and closure processes and supporting tools. Service Level Objectives (SLOs) defined and KPIs established. A set of initial services launched and processes refined based on lessons

---

learned.

FY14/15   Actively promote A&S services. All services monitored against SLOs and measured against KPIs. Service delivery processes, tools and KPIs refined based on client feedback. Requirements for new products or services identified.

FY 15/16   Increased ability to forecast service demand and resourcing. Decreased service delivery time and effort.

3.3.4.2 EHR Blueprint

BY FY 2016-17, the EHR Blueprint will be a toolkit of knowledge resources to help all stakeholders develop interoperable and sustainable EHR systems. The EHR Blueprint will consist of multiple views – similar to how blueprints for a house have different views for construction, electrical, and plumbing – available to them in variety of mediums ranging from written documents to interactive, digital views and online education modules

Blueprint Roadmap

FY13/14   EHR Conceptual Blueprint, release 3 Published. EHR conceptual and technical education modules posted to the website. Common methodologies established for developing architecture and standards documentation from the various views using an enterprise tool (SPARX EA).

FY14/15   EHR Logical Blueprint Published. EHR education modules expanded to cover specific topics within each view. Supporting eHealth Blueprint reading materials (summary and technical) developed and externalized. EHR architecture and standards development best practices and templates shared externally. Mobile health unique needs addressed in various views.

FY 15/16   EHR Blueprint updated to reflect changes in EHR systems implementation, provincial priorities, and evolving industry practices. Health system use data warehousing and analytics elaborated within Blueprint.

FY 16/17   EHR Blueprint is a highly valued knowledge resource used by EHR system planners, implementers, and educators across the province. Continued evolution of Blueprint and accompanying resources.

3.3.4.3 EHR Architecture and Standards Governance

eHealth Ontario established a formalized architecture and standards checkpoint process in support of the broader enterprise project gating methodology required by the MOU with the MOHLTC. The architecture and standards checkpoints ensure best practices are followed and that proper information about EHR systems is documented. However, this does not cover all of the architecture and standards decisions that need to be made. Ontario is building a federated EHR where multiple organizations have a responsibility for designing, developing and operating components of the provincial EHR. The creation of a federated EHR requires governance structures composed of external organizations to collaboratively develop and approve EHR architectures and standards. The internal gating governance and external EHR architecture and standards governance will be integrated by 2016-17.

Governance Roadmap

FY13/14   External EHR standards governance structures assessed for expansion to include architecture. Governance documentation (processes, Terms of References, etc.) revised to support architecture as part of their scope. Internal architecture checkpoint processes and templates revised to improve project needs.

FY14/15   External EHR architecture and standards governance launched. Federated ID and Context sharing architecture and standards approved by external governance bodies. Opportunities to align internal architecture check point processes with external governance identified.

FY 15/16   Internal and external architecture and standards governance decision making processes aligned. Refinements made to processes and templates based on lessons learned.

FY 16/17   Internal and external architecture and standards governance decision making processes optimized.

3.3.4.4 Information Management

In support of the broader corporate approach to IM, Architecture and Standards is working with Knowledge Management (KM) to co-sponsor the development and implementation of IM strategies and plans. The Architecture and Standards roadmap provided below is subject to change based on the corporate KM strategy.

The creation of Ontario's EHR requires a coordinated approach to the creation and management of information. When information about EHR systems' designs is hard to find, not readily shared, or inconsistently managed, it has a direct and negative impact on our projects, people and finances. By FY 2016-17, all information about Ontario's EHR will be accessible and easy to use for those authorized to use it (i.e. eHealth Ontario and its stakeholders will be approaching level 4 on the Gartner Information Management Maturity scale). We expect that the Information Management (IM) Strategy and Roadmap will involve a multi-year investment plan to increase our current Information Management Maturity Level from level 1 (Aware) to our target level 4 (Managed) in the 0 through 5 point scale where 0 is Unaware and 5 is optimized.

IM Roadmap

FY13/14   IM assessed. IM strategy and roadmap approved. Quick wins identified and progress achieved towards Level 2.

FY14/15   IM governance structures and supporting processes within the agency launched. (approaching Level 3)

FY 15/16   IM governance within the agency (Level 3) fully established.

FY 16/17   Provincial IM governance structures and supporting processes launched. (approaching Level 4)

Architecture and Standards Department Roadmap Summary
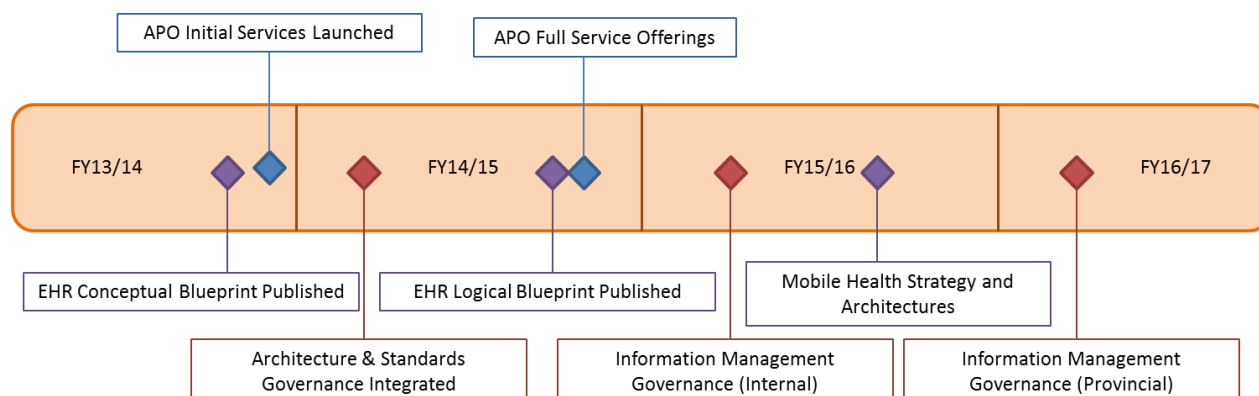
3.3.5 Major Accomplishments to Date

Ontario's eHealth Blueprint

Ontario's eHealth Blueprint has evolved to contain four different views of the EHR and an accompanying descriptive document has been developed. Just as the architecture for a building has separate blueprints for electrical, plumbing, etc., the EHR can be viewed from different perspectives that all need to align. Consequently, Ontario's eHealth Blueprint contains multiple views of the EHR, namely a Business View, an Information View, a Systems View and a Technology View.

- The Business View describes the health care business and describes the stakeholders, business needs, goals, vision, principles, strategies, major services, and representative business use cases.
- The Information View provides a conceptual model of the information that constitutes a person's Electronic Health Record.
- The Systems View describes the applications and services that make up the EHR solution, their deployment, integration approaches, standards, privacy and security, implementation approaches, and governance.
- The Technology View describes the hardware and infrastructure which supports eHealth applications and their interactions.

Together, these Blueprint views and their components help provide a common understanding of the principles, architectural patterns and approaches needed to design and build secure, standards-based, private and interoperable EHR solutions, optimized to achieve faster time to market and designed to be adopted by a large stakeholder community.

Consolidation of Architecture Resources

In June, 2013 the Infrastructure Architecture Team was consolidated into the broader Architecture and Standards Department to improve alignment between the design, implementation and maintenance of EHR applications. All architect resources are now a part of the A&S Department.

Architecture Program Office

In May 2013, the department launched an architecture engagement model project which established an operational framework, supporting artefacts and plan to improve resource management within the department and delivery of Architecture and Standards related Services to Stakeholders inside and outside the Agency. In October 2013, following the successful completion of this initiative, the Architecture Program Office (APO) was established as a first step towards the goal of becoming a centre of expertise in architecture and standards for the Province. The APO will provide the people, processes and tools to assist all A&S programs with 4 key functions:

- Governance of EHR Architecture and Standards
- Engagement activities to increase awareness of our products and services
- Service intake and coordination to ensure high quality services are delivered and tracked through to closure
- Program management to help the A&S Department to effectively plan for service delivery and measure progress against KPIs.

Architecture & Standards Stakeholder Engagement

This year, we have promoted eHealth as the source of architectural and standards truth when it comes to the Ontario eHealth blueprint by significantly elevating our engagement levels with stakeholders. Some examples of our outreach include:

- The launch of a quarterly external Architecture & Standards Update, the Blueprint Bulletin, which received 1,819 views (from 11 countries) in May 2013 and 2,267 views thus far (from 18 different countries) for October 2013.
- The launch of a monthly (7 formal updates) department intranet update aimed at increasing awareness of the role of architecture and standards within eHealth Ontario
- The delivery of the Agency's first live streamed event. The department's World Standards Day online broadcast attracted 345 participants from across the country.
- Multiple formal presentations at regional, provincial, national and international events.
- In depth architecture discussions held with cSWO, cNEO and cGTA on a range of topics including Federated ID and Context Sharing, CDR, DI/CS, etc.

eHealth Standards Governance

The Standards Governance that was established in January 2012 continues to receive wide engagement and upward momentum. The Strategic and Business & Technical committees are comprised of 23 external agencies (MOH, cGTA, cNEO, cSWO, OTN, CCO, etc.) that have a stake in the implementation of the EHR. Each committee has met every other month since January 2012 (~20 formal meetings & 10 optional webinars). Since its inception, the Standards Governance committees have:

- Reviewed and approved 6 standards to be "Grandfathered" into the new governance structure.
- Reviewed and approved the Provincial Client Registry (PCR) Standard on time and on budget. Ten organizations submitted 195 comments, of which 63% led to improvements to the standard
- Reviewed and approved the CCO Ambulatory Care EMR Extraction Standard on time and on budget. Nine organizations submitted 243 comments, of which 49% led to improvements to the standard.

Checkpoint Process

In July 2012, we enhanced our Checkpoint process to include 6 different disciplines (Architecture, Standards, Quality, Privacy, Security and Operations). As part of our continuous improvement efforts, we have undertaken an initiative to refresh the process to apply lessons learned over the past year. In September 2013, a survey was distributed to Checkpoint Submitters, Reviewers and Committee Members. As a result of this feedback, the following revisions are being formalized for review and approval by BARC:

- More frequent ACT/BARC meetings (2 week cycle instead of monthly)
- Improved Checkpoint templates (fewer documents required, many templates are smaller and easier to complete, etc.)
- Improved process documentation and training
- To date, there have been over 240 Checkpoint approvals, and for this fiscal we have reviewed a total of 54 project Checkpoint submissions.

Information Management

Previously, eHealth had at least eight glossaries used by different programs and projects. A single, consolidated glossary was created and is now centrally managed by the eHealth Standards Program. In response to our 2011 information management work, the Architecture and Standards Department

has been leveraging a modeling tool – known as Sparx Systems Enterprise Architect (Sparx EA); this has enabled programs and projects to model and manage complex information on EHR systems in an efficient and effective fashion. Going forward, Sparx EA will be used as the system of record for design of components for EHR projects, and will be used to generate the architecture materials required for Gating/Checkpoint submission.

Use of the tool has several benefits including:

- Reduced reliance on "paper" designs and their associated pitfalls
- Single source of truth for system designs
- Improved ability to re-use design elements
- Standardization of design approach
- Enhanced traceability

This year we have added Physical architecture to the Sparx EA model. Currently we are on target is to have ~90% of project checkpoint submission being done in Sparx EA by 2014-2015. In addition, we have developed standards and guidelines for the use of EA Sparx in order to reduce the effort to produce gating documents

EHR & HI Education

- Published the 4 Technical Blueprint Overview e-learning modules & 5 logical architecture e-learning modules (353 registrations) and held 3 internal workshops (53 participants)
- Developed 4 Information Architecture e-Learning modules and workshop for internal and external users
- Developed 3 Service Oriented Architecture e-Learning modules and workshop for internal and external users
- Developed, coordinated and presented corporate-wide monthly Healthcare & Informatics Bootcamp (170+ participants)
- CPHIMS-CA exam preparation program including 25+ Lunch 'N Learn Sessions, 2 half day workshops, on-line reference library (Sharepoint), centralized program coordination for exam sitting, text book purchasing and distribution (50+ participants).

Service Oriented Architecture

As eHealth Ontario and Delivery Partners move forward with building EHR services, a rigorous set of policies are needed to ensure that all of these services work together and are manageable. Service Oriented Architecture (SOA) policies provide guidance to people designing services, as well as to people assessing the quality of service designs (ACT and BARC).

This year, Architecture and Standards have defined the key SOA policies that underpin the EHR, namely Service Design policies, Service Runtime policies, Service Profile, and Service Naming, Versioning, Taxonomy and Lifecycle policies and models. These policies and models will submitted to ACT and BARC this fall, with the intent of making them binding to future ACT/BARC solution submissions.

Terminology Services

The A&S Department provided architecture and standards development services to the Diagnostic Imaging Common Services (DI/CS) Project. One of the key deliverables was an interoperability standard for the exchange of DI reports and images that was developed collaboratively with the DI Program and its stakeholders.

The standard and supporting materials specify everything from the format for data exchange to mappings between local DI procedure codes and ~2,500 provincial codes. The provincial list of DI report codes was a major undertaking requiring extensive stakeholder collaboration and alignment with national initiatives through Canada Health Infoway. This initiative identified 1,600 new concepts that were submitted to the international body responsible for the SNOMED CT standard for inclusion in a subsequent release so that the rest of Canada and people around the world can benefit from our work.

Enterprise Availability Service

In 2013, we established the Enterprise Availability Service (EAS) Program which plays a leading role ensuring that application, infrastructure and system management holdings are accessible 24/7/365. The EAS program reaches all aspects of the eHealth Blueprint, making sure the right technology, processes, and people are in place to serve clients, business partners and their dependencies. EAS supports the delivery a solution toolkit that includes: Continuous availability, high availability, continuous operations and disaster recovery

Since the program's inception the following achievements have been made:

- Defined 4 availability classes and 31 patterns by interviewing 34 departments (80 people in total).
- Identified 164 suggestions for change
- 3 service updates underway
- Updated the checkpoint process to include a checklist for availability considerations

4 Corporate Supports

4.1 Shared Services

Corporate IT

The Corporate Information Technology team has been created to strengthen the Agency's corporate governance framework for the management of information and information technology (I&IT) projects and the development of related I&IT operational policies and documents. Corporate IT will ensure that corporate tools are effective strategic enablers for staff in the delivery of eHealth Ontario business services including the delivery of EHR systems.

Delivery Partners and Business Operations

The delivery partners program establishes and maintains clear, effective, and aligned relationships with key stakeholders including the Local Health Integration Networks (LHINs), Canada Health Infoway (CHI) and health service providers. With these partners, the program advises on strategic investments, performs a stewardship role, and builds partnerships to enable multiple and parallel streams of integration to build the Electronic Health Record.

The business operations program is responsible for operationalizing delivery partner investments, and maintaining the expertise and capacity to champion and support stakeholder proposals through the Agency's business review by leveraging standardized tools and processes (i.e., secretariat to business review committee). Business operations ensures accountability of the Agency's delivery partners to effective and aligned project delivery by applying standardized agreements, project governance, regional alignment, outcomes definitions and performance metrics to partner initiatives. The business operations program is responsible for strategic investment alignment with key provincial eHealth stakeholders including CHI, the LHINs and other provincial services.

Program Project Management

Program Project Management Team establishes and maintains an Agency-wide project governance framework and standardized project management practices.

The Project Management Officer oversees resource management of project managers and project coordinators and works closely with the Architecture, Standards and Planning division to align gating processes and ensure consistent application of the eHealth Ontario gateway policy and the upgrade roll out of the corporate management tool across the Agency. This tool, together with the proposed portfolio planning framework which is being finalized for implementation this year, will raise the Agency's project management maturity level.

To strengthen project delivery at the agency, several initiatives have been undertaken to strengthen our people, and simplify our project methodology. Skill and experience requirements for each of our project management roles have increased. This revised competency model guides our hiring decisions, resulting in the successful recruitment of several experienced professionals. One Project Control Officer, a new role focused on developing, controlling and monitoring progress against the project schedule has been deployed. A pre-requisite to delivering a quality product is the development of comprehensive business requirements.   Business analysts across the agency have been given detailed training on business requirements writing and solicitation that will increase the quality of business requirements captured in future projects.

To meet project demands, the project management team will expand its capacity through the introduction of a flexible staffing model. By acquiring a vendor with strong project management capabilities, skilled resources to respond to agency project needs.

4.2   Corporate Functions

Corporate Services

Corporate Services is comprised of seven units: Business Planning, Financial Planning & Analysis, Financial Controllership, Strategic Sourcing & Vendor Management, Business Controls, Records Management and Facilities. It provides the essential services, systems, controls and procedures to support the Agency's daily operational and business activities in an effective and efficient manner. The function's mandate, roles and responsibilities and processes have evolved significantly over the past year and will continue to improve as the function matures and stabilizes. The current client-focused services aim to strike a balance between value-added business partnership and compliance with the relevant regulations, government directives and corporate policies. The function plays a number of key roles including leading the business planning process, liaising with the Ministry, ensuring prudent financial management, implementing strong controllership, administering compliant procurement standards and practices, managing functional internal control and compliance risks and contributing to employee health and safety. Below is a highlight of five key functions in Corporate Services.

Business Planning

The Business Planning team leads and coordinates the Agency's annual business planning process and provides support in the framing of strategic priorities.

Financial Planning & Analysis

The Financial Planning & Analysis (FP&A) team is responsible for the Agency's annual budget in the Annual Business Plan, financial forecasting, management reporting and financial due diligence of spend proposed by the business units. Over the year, the evolution of this function has enabled the Agency to improve its financial budgeting and management reporting with a risk-based, forward-looking lens. Currently, FP&A is working with the Enterprise Program Project Management (EPPM) team to evaluate the feasibility and the approach to integrate project management and financial management. This undertaking will be the key focus for the coming years in order to further improve the predictability of the Agency's financial forecast and ability to meet its budget along with the implementation financial KPI's for all business units. FP&A will continue to develop its capability with the aim to strengthen its positioning as a financial business partner in major investment decisions and to ensure prudent financial management throughout the life cycle of programs and sustainment activities.

Financial Controllership

The Financial Controllership (FC) function is responsible for financial reporting in accordance with the Generally Accepted Accounting Principles and for fulfilling specific Ministry reporting and requirements per the Agency's governing instruments. In the past, the FC function was staffed and managed as a back office processing and reporting centre. The resource and capability of this team have been significantly improved over the last 12 months and the function now plays a critical role as a process owner and gatekeeper for financial related internal controls and compliance requirements, many of which directly impact the Agency's reputation. It has also revamped the financial reporting controls and processes which led to the Agency's first financial statements audit with no audit differences raised by the external auditor. Going forward, the team will continue its strong controllership function and collectively with the other Corporate Services functions, ensure responsible financial stewardship at the Agency.

Strategic Sourcing & Vendor Management

Strategic Sourcing & Vendor Management (SSVM) plays a key role in eHealth Ontario's procurement activities. It leads the procurement process to ensure government standards and compliance requirements are being met while obtaining high quality goods and services at the most competitive pricing available to support the Agency's business needs. SSVM works with the business units to facilitate the identification, negotiation, contracting and post contract implementation of suppliers. The process is a fact-based, total cost of ownership approach which utilizes teams comprised of product/service consumers, service providers and other stakeholders who are an integral part of the decision making and selection process. In the process, SSVM proactively manages the Agency's

communication and relationships with external suppliers to promote open, transparent and competitive procurements.

<u>Business Controls</u>

The Business Controls (BC) team is the assists management in detecting internal control and compliance issues in the higher risk areas where Corporate Services owns / co-owns the policies and processes. It delivers a risk-based annual work plan for a defined scope which includes four main types of services; (1) performs control testing and issues monthly alerts and quarterly dashboards to the senior management committee for action ahead of third-party audits; (2) supports the CFO & SVP Corporate Services in cross-functional assignments and task forces to design or revamp broken business and operational processes; and (3) is responsible for the timely submission of Public Disclosure of Expenses to the Integrity Commissioner and (4) acts as a bench resource for ad-hoc activities such as public accounts, government audits, ministry requests, compliance activities, etc.

Human Resources

The Human Resources department's strategy is built on four key pillars: employee engagement, leadership development and building capability, talent acquisition and development, and service delivery and process improvement.

Key delivery priorities

- Define project, program and service delivery roles to achieve the highest professional qualifications and performance standards
- Streamline organizational hierarchy (7 levels to 5) and current process complexities to improve performance and accountability to clients served
- Propose the delegation of relevant authorities to the levels closest to those clients served and the partners with whom the Agency works
- Organize and undertake a comprehensive Agency-wide job classification and valuation review to ensure the competitiveness of the Agency's compensation plan in its market
- Establish a talent management and job matching capability that enables efficient and timely deployment of qualified personnel to defined tasks

Internal Audit

Internal Audit focuses on risks to execution of eHealth Ontario's mandate by bringing a systematic and disciplined approach to evaluating and improving the effectiveness of financial, operational, risk management, control and governance processes. Through the execution of the Agency's board-approved risk-based internal audit work plan, internal audit supports the Agency in meeting the highest standards of integrity, accountability and transparency.

Legal

There are four main areas that make up the core functions of the department. General Counsel sits on the senior management committee and as such contributes to decisions on policy and strategic direction of the Agency. Legal services (general counsel and staff lawyers) provides legal advisory services to executive officers and business units in support of strategic initiatives and projects, procurements, transfer payment agreements, human resources and contract management. Compliance provides a framework to maximize the Agency's compliance with governing legislation and Ontario directives with priority on privacy and procurement. The corporate secretary's office provides advice and support to the Chair, the President and CEO, board members and board committees as required to enable superior board governance. The Legal Department is also responsible for management of the Agency's insurance program.

4.3   Human Resources Plan

Summary of Staff Complement

The following table outlines the Agency's actual and projected headcount. The projected headcount represents the Agency's current best estimate of staffing requirements. Based on current planning

assumptions, the Agency's anticipated contractor to total headcount ratio can be found in the table below.

eHealth Ontario Headcount Projections

(as of March 31)	Mar 31/12 Actual	Mar 31/13 Actual	2014/15 Planned	2015/16 Planned	2016/17 Planned
Total	794	828	875	875	875
Contractor	49	41	40	40	40

Notes

* Excludes temporary staff, secondments and co-op students
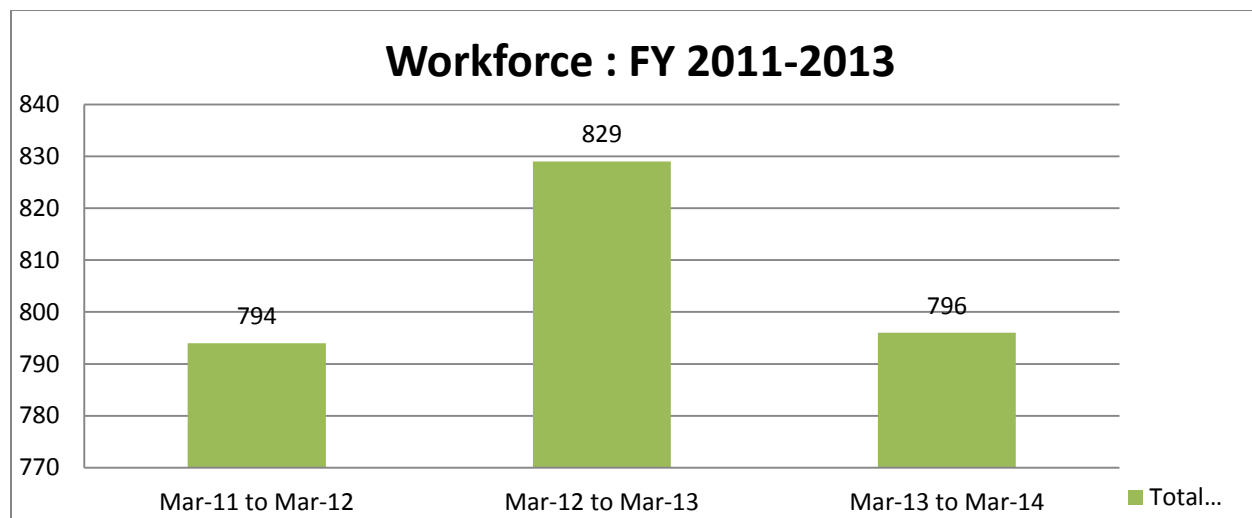
The agency has an approved FTE cap of 875 but is currently staffed well below the cap

5 Communications Plan

Business Objectives

- Demonstrate the efficacy and value of eHealth Ontario to the Ontario taxpayer, health care providers, stakeholders and patients.

Communications Objectives

- To communicate the value of eHealth Ontario and its many beneficial programs to the taxpayer/public, health care providers, stakeholder organizations (e.g., Ontario Hospital Association, Ontario Medical Association, Ontario Pharmacists Association, College of Physicians and Surgeons, vendors) and patients.
- Enable public understanding of the value and benefits of eHealth Ontario in the provision of health care in the province of Ontario.
- Limit potential for criticism and negative media coverage.

Context

eHealth Ontario is frequently under media scrutiny from members of opposition political parties stemming from the 2009 provincial auditor's report, a recent class action suit by Agency employees, and the departure and compensation for outgoing President & CEO Greg Reed. This has resulted in adverse publicity for the Agency. This plan will serve to provide a progress report to government on the status of eHealth Ontario and its many initiatives. This document will not be made available to the public due to cabinet confidentiality.

Background

Perceived issues of:

- Poor fiscal management
- Lack of tangible outcomes
- Missed deadlines
- Continued reliance on consultants

Social Environment

What little public awareness there is of eHealth Ontario is tainted by past negative media coverage. The mandate of the organization is poorly understood and limited to only a small group of health care providers and stakeholder organizations.

Potential Issues

Potential issues include:

- Failure to implement programs on schedule
- Privacy issues
- Employee morale regarding uncertainty of future
- Bonuses/compensation issues
- Skeptical media climate

Target Audiences

eHealth Ontario's primary audience is the public. The Agency is not able to advertise and must rely on "earned" media to communicate achievements through social media, website and third party validation to tell its story. Secondary audiences include health care providers, local health integration networks, health care organizations and administrators. eHealth Ontario's tertiary audience includes vendors and professional colleges.

Strategic Approach

eHealth Ontario will continue with its strategy of highlighting high profile, local and provincial success stories tied to Ontario's action plan for health care, specifically two of its key priorities – Keeping Ontarian's Healthy and Right Care, Right Time, Right Place. In an effort to better establish credibility with eHealth Ontario's primary audience, the public, third-party endorsements from patients and health care providers will be used as appropriate. This approach will also help to leverage and garner support for eHealth Ontario's progress.

As part of eHealth Ontario's proactive approach to restoring the public's image of the Agency, eHealth Ontario will also use its recently redesigned website to promote success stories through videos featuring patients, clinicians and other health care ambassadors.

eHealth Ontario will work with the Ministry's communications and information branch to write an integrated communications plan for 2014.

Key Messages

Primary audience

- eHealth Ontario is committed to improving patient care by putting valuable information into the hands of health care providers quickly and easily
- eHealth Ontario is leading the way in ensuring the privacy of personal health information in the use of Electronic Health Records
- eHealth Ontario will save taxpayers money by improving the speed and efficiency of health care delivery across the province

Secondary audience

- eHealth Ontario is committed to improving patient care by putting valuable information into the hands of health care providers quickly and easily
- eHealth Ontario is working with health care providers and organizations to improve workflows and reduce the dependency on paper-based systems
- eHealth Ontario will ensure health care providers have more comprehensive and complete information leading to better health outcomes for Ontarians

Vendor message

- eHealth Ontario remains committed to the principles of openness, fairness, competitiveness and transparency in its relations with the vendor community
- Through effective, but fair collaboration, the Agency can ensure the best possible results for patients, clinicians and the health system

Tactics

Tactics include:

- CEO speaking tours
- Media announcements
- Matte stories
- Videos featuring third-party endorsements
- Online communication including continuous updates to the corporate website
- Social media (YouTube) for the video success stories
- Email blasts to website viewers and other interested stakeholders
- Print collateral including fact sheets, progress reports, brochures, editorial boards, op-ed columns
- Media interviews (open line radio, television)
- Stakeholder trade shows/associations conventions
- Electronic newsletter to health care stakeholders (10,000 subscribers)

Evaluation

Earned media will be monitored and evaluated as will visits to eHealth Ontario's website and video news stories.

Issue tracking is currently in place and will continue to monitor any issues resulting during the rollout of eHealth Ontario announcements and/or ongoing Agency coverage.

Public opinion research will be required to determine the outcome of tactics described above; metrics will be available for all online tactics.

6 Governance

6.1 Corporate Governance Model

The Agency is a corporation established under O. reg. 43/02 made under the Development Corporations Act, as amended and is an agent of Her Majesty for purposes of the Crown Agency Act. The affairs of the Agency are managed and controlled by a board of directors of 10 persons appointed by the lieutenant governor in council. The lieutenant governor in council also designates the chair of the board of directors and appoints the chief executive officer (CEO) of the Agency.

6.2 Governance Instruments with the Ministry of Health and Long-Term Care

The following governance instruments are currently in effect between the Ministry and eHealth Ontario:

- Memorandum of Understanding (MOU)
- Accountability Agreement (AA)

6.2.1 Memorandum of Understanding

The purpose of the MOU is to:

- Clarify the roles, responsibilities, mutual expectations and accountabilities of the minister, the deputy minister, the Agency, the chair, the board and the CEO
- Confirm the accountability mechanisms of the Agency and the Ministry and the accountability framework between the board and the minister
- Clarify the functions of the Agency in support of its accountability requirements by recognizing the application of prudent management principles, government directives and the regulation to help the Agency achieve its mandate

The MOU supplements the provisions of O. reg. 43/02 made under the Development Corporations Act to determine how the Agency governs itself. The current MOU, which expires on March 31, 2014, includes the following four schedules:

- Schedule A – Summary of applicable treasury board/management board of cabinet (TB/MBC) directives
- Schedule B – eHealth Ontario procurement policy
- Schedule C – eHealth Ontario gating policy
- Schedule D – Information exchange, communications and issue management

6.2.2 Accountability Agreement

The AA further defines the governance relationship between the Agency and the Ministry. In particular, it addresses specifics of the Agency's reporting obligations to the Ministry, sets out the mutual understanding between the parties in respect to their performance obligations and outlines the Agency's annual business plan procedure. The current agreement, which expires March 31, 2015, includes the following four schedules:

- Schedule 1 - General accountabilities
- Schedule 2 - Financial management
- Schedule 3 - Planning and allocation
- Schedule 4 – Deliverables

The Accountability Agreement (Agreement) between the Ministry and eHealth Ontario is one element of the larger accountability framework that defines the roles, responsibilities and accountabilities between the two respective parties. The Agreement outlines the performance expectations and

reporting requirements of the Agency and operationalizes certain elements of the Agency's Memorandum of Understanding.

Accountability Agreement Process Management

The underlying process and points of coordination for the Accountability Agreement have evolved both at the Agency and the Ministry since the inception of eHealth Ontario. With the exception of program-related issues, the CFO & SVP Corporate Services is now tasked to be the single point of communication and coordination for the Accountability Agreement and will work with the Ministry collaboratively to fine tune the process in meeting the performance expectations and reporting requirements as specified in the Agreement. The Director of the MOHLTS eHealth Liaison Branch will participate directly in the bi-monthly Gating Policy and Project Review Committee to facilitate communications on program and project issues.

6.2.3 Mandate Letter

O. reg 43/02 provides that the minister may issue policy directions to the Agency.

6.2.4 The Board of Directors

The board of directors of eHealth Ontario (the "board") is accountable to the Minister of Health and Long-Term Care for the Agency's use of public funds, for setting the goals, objectives and policy direction for the Agency within its statutory mandate and for carrying out the roles and responsibilities assigned to it by the regulation, other applicable legislation and the MOU.

The board is responsible for the stewardship of and has the duty to supervise the management of, the business and affairs of eHealth Ontario (the "Agency"). In furtherance of this mandate, the board is actively engaged on a wide range of matters directly and through committees of the board. The board's principal duties and responsibilities are:

- acting in the best interests of the Agency
- ensuring the Agency has a clear strategic direction
- ensuring that the Agency retains a strong management team
- ensuring that the Agency carries out its business effectively, efficiently and ethically
- reviewing and approving adequate internal controls and processes
- reviewing and approving adequate processes for managing risk
- communicating openly and honestly
- ensuring the Agency is in compliance
- maintaining corporate governance
- establishing board committees
- defining general responsibilities for a director

The board performs such duties as may be required under and acts in accordance with, Ontario regulation 43/02 made pursuant to section 5 of the Development Corporations Act, the Agency's by-laws, the MOU, the AA and all applicable laws.

The board has a charter that details how it discharges its responsibilities both directly and through committees of the board. In addition to its standing committees, the board may establish "ad hoc" committees to address certain issues as needed.

6.2.5 Committees of the Board of Directors

eHealth Ontario's board of directors has established the following committees in order to assist the board in the fulfillment of its governance role. Each committee has a charter that details how it discharges its duties.

Finance & Audit Committee

The finance & audit committee is a standing committee of the board of directors of eHealth Ontario. Its mandate is to assist the board in fulfilling its oversight and accountability responsibilities in respect

of management of the Agency by reviewing and recommending policies governing comptrollership and fiduciary matters. The committee's principal duties and responsibilities are:

- Financial planning - Studying and recommending the financial component of the annual business plan; reviewing and evaluating long-range revenue and expenditure projections; and, examining the financial impact of the Agency's strategy.
- Monitoring financial performance - Receiving and reviewing management's quarterly financial statements for the quarter most recently and between quarter ends receiving and reviewing management's report on the financial operations and positions of the Agency for the most recent month ended prior to the committee meeting and, advising the board on any issues therein; and overseeing the financial implementation of the current year's business plan
- Protection of assets - Annually, recommending to the board of directors, suitable banking arrangements.
- External financial accountability - Ensuring an effective external financial audit process; advising the board regarding the performance and selection of the auditor; reviewing the Agency's (including its pension fund) audited annual financial statements and advising the board accordingly; and, ensuring the credibility and objectivity of the financial reports
- Financial and management control (including compliance with financial policies and procurement policy) - Reviewing issues and making recommendations that affect the financial management, financial viability and internal controls systems of the Agency; reviewing procedures relating to the control of the operational and capital expenditures of the Agency; receiving the internal audit plan and advising the board accordingly; reviewing the internal audit activities and advising the board accordingly; and, reviewing of commitments as per delegation of spending and payment policy
- Risk management – Assessing the adequacy of the enterprise risk management policy and procedures with regard to identification of the principal risks, mitigation (and now/emerging principal risks) and the adequacy of reporting to the board
- Insurance management – annually, reviewing the insurance coverage of all Agency insurance policies and any changes.

Corporate Governance Committee

The corporate governance committee is a standing committee of the board of directors of eHealth Ontario. Its mandate is to assist the board of directors in fulfilling its oversight responsibilities in respect of the management of the Agency consistent with high standards of corporate governance. In furtherance of this mandate, the committee recommends the Agency's overall approach to governance issues and key corporate governance principles and implements, monitors and assesses and reviews the same. The committee's principal duties and responsibilities are:

- Ensuring adherence to the terms of the MOU between the Ministry and the Agency
- Reviewing matters pertaining to governance policies, as well as compliance therewith
- Reviewing matters pertaining to the organization and composition of the board of directors, including the organization and conduct of board meetings and the education, effectiveness and independence of the board of directors, its committees and individual directors
- Reviewing matters pertaining to the Agency's policies and practices in respect of regulatory compliance, conflict of interest and standards of ethical and market conduct

Executive Committee

The executive committee is a standing committee of the board of directors of eHealth Ontario. Its mandate is to act for the board on matters arising between regular board meetings in cases where: it is deemed infeasible to convene a meeting of the board; to address the compensation of the CEO; and to conduct other business as delegated by the board to the committee. The committee's principal duties and responsibilities are:

- Any matter that the board of directors may address, except matters reserved for the board of directors under the executive committee charter
- Executive compensation

6.3 Reporting Commitments

The reports described below are required by the Ministry per the accountability agreement. Additional reporting may be required to the extent that the government requires further information to release a financial holdback, or for other purposes.

Description	Due Date
Cash status report	11 days after the end of each month (Note: may be submitted up to 15 days after the end of the month)
Monthly financial report	25 days after the end of the month (Note: variance report may be submitted up to 30 days after the end of the month)
Quarterly financial report	30 days after the end of the quarter
Monthly project status reports	25 days after the end of the month
Compliance attestations	30 days after being tabled with the board (Note: once implemented consistent with board direction)
Draft annual financial report	Within 60 days after the Fiscal Year end
Audited financial report	Within 90 days after the Fiscal Year end
Draft annual report	Within 90 days after the Fiscal Year end
Annual report	Within 120 days after the Fiscal Year end
Draft annual business plan for the following fiscal year (e.g., 2013/14)	By August 2, of the previous fiscal year (e.g., 2012)
Board approved annual business plan for the following fiscal year (e.g., 2013/14)	October 1, of the previous fiscal year (e.g., 2012)
Reports required by TB/MBC	As provided in correspondence from the associate deputy minister to the CEO
Major project reporting	Third Thursday after the end of each quarter (e.g., July 19, 2012 for Q1 2012/13)
Reports specified from time to time	On a date or dates specified by the province
Quarterly GRE plan	25 days after quarter end
Quarterly revenue forecast – CHI revenue	25 days after quarter end
Quarterly status updates for pilot projects	30 days after quarter end

In addition to these reports, an executive dashboard is produced on a monthly basis for review by the senior management committee and each quarter by the board.

6.4 Management Team

The organizational chart showing the Agency's management team is shown below:
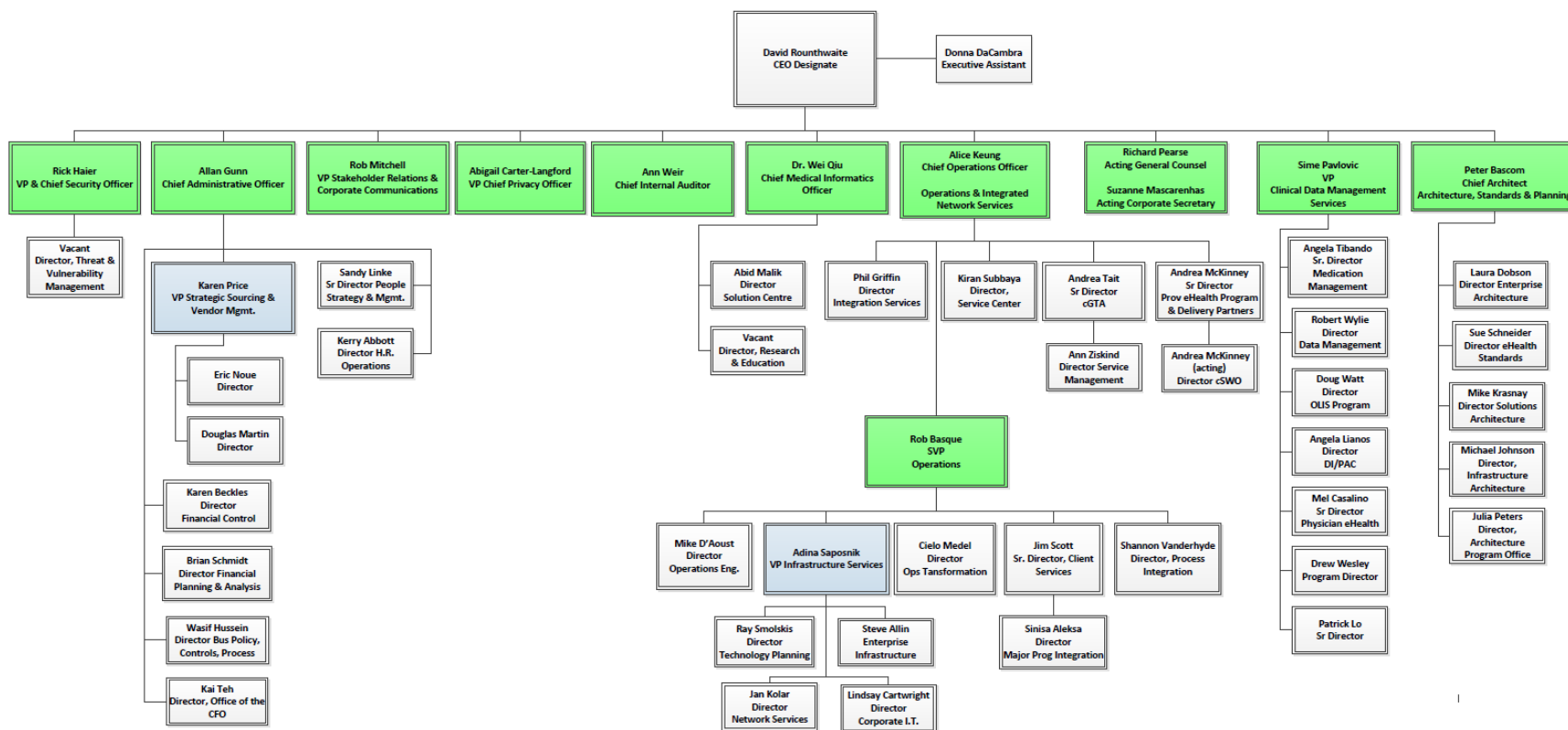
7   Financials

Budgeting Approach

The budgets for programs, operations and other business units were consolidated to arrive at the Agency budget. For ABP purposes, best efforts for program/operations budgeting assumptions and costing models from the business areas, have been applied to this plan.

Key Definitions Applied in the Budgeting Process

There are three major categories of budgeted costs in the ABP. Each category is budgeted using different methods, and hence, has differing degrees of confidence level.

Base Costs

Salary, wages, benefits, training, labour costs and benefits associated with resources to perform base Agency functions. Includes facility costs, such as office rent and office leaseholds.

Projects Costs

Incremental costs required to complete the scope of the project as mandated in the MB20. Includes new project development costs and first year operating costs which are not necessarily existing TPAs or procurements. Also includes non-MB20 projects such as Technology Services initiatives, Physician adoption projects and QA initiatives.

Sustainment Costs

Ongoing, operational activities that are required of internal and external health service providers to maintain eHealth systems and associated data such that they maximize the benefit for patients and the health care system as a whole.

The nature of sustainment costs can be broadly split into 2 categories:

- Operating activities include ensuring that systems remain operational, including hosting services, equipment purchase, related labor, data centre and networking, license maintenance and ongoing adoption of data agreements supporting recording and sharing data in a complete, timely, appropriate, and accurate fashion.
- Upgrading activities including upgrading EMR systems, as new versions and functionality become available and H/W refresh cycles.

Key Budgeting Assumptions

Overall

The ABP budget is based on the Agency's strategic priorities and program deliverables / milestones under the existing mandate. The main focus is to arrive at a best estimate for FY 2014/15 which is the starting point for next fiscal year's annual budget while FY 2015/16 and FY 2016/17 capture the major program activities and commitments known to date. The Agency's ABP and corresponding budget will be aligned to the strategic review results when available.

Headcount

Headcount assumed to be capped at 875 for each of the three years in the ABP representing a reduction from the previous ABP assumption of 975.

Facilities

Office facilities assumed status quo for ABP budgeting purpose. Potential impact from right sizing of the Agency and outsourcing of the call centre assumed to be minimal for FY 2014/15 due to potential rental savings offset by transitional time. Office facilities budget will be adjusted when decisions and details are available.

Programs Budget

i) ABP budgets were submitted by the Program SVP/VPs and Directors based on planned project activities, milestones and deliverables.

ii) COO and Program SVP/VPs assumed that certain MB20 programs will not be completed by the end date of the MB20 program and will require rebaselining. These matters are subject to discussion by the Program executives with the Ministry. MB20 rebaseline requires the support of the Ministry and approval by Treasury Board. In the ABP, Programs assumed DIPAC (existing end date March 2014), OLIS (existing end date March 2015) and Integration Services Program (existing end date March 2015) will continue beyond their respective end dates and accordingly, have included MB20 program budgets beyond these dates.

Sustainment Costs

The Agency incurs internal and external sustainment costs. Internally, these costs are primarily in Technology Services in the form of labor, data centre, network, hardware / infrastructure refresh and software renewals. External sustainment costs are primarily funding through Transfer Payment Agreements (TPAs) with multiple delivery partners in the health sector and include costs to host and support the ongoing external hosting infrastructure, ongoing data collection, change management, project management and corporate costs. The ABP assumed status quo for these TPAs and funding arrangements for the planned periods. A long-term sustainment strategy regarding rationalizing and consolidating the multiple instances of hosting, IT operating costs, change management, project management, and corporate costs paid to various delivery partners is a topic under discussion with the Ministry.

Operations

Data Centre operating costs for MCC and SCC are being reduced through June 2017. This is assumed to be offset by operating costs for a new Disaster Recovery solution which is expected to begin in 2015. The net effect of these activities is assumed to be zero in the ABP related to operating costs until Operations have more information. Project and transition costs are captured in the incremental project spend.

Network

eHealth Ontario, along with other large provincial agencies, is currently in discussion with MGS for procurement and consolidation of future network services. The Agency is also in discussion with our current provider, Hydro One Telecom, to address the current Network Services Contract which expires at the end of 2014. These discussions fully include provision for the MGS initiative. Until a decision is made on a consolidated provincial network, assumption is that network costs continue at current rate for next 3 years.

7.1   The 3 Pillars of the Agency

eHealth Ontario's budget for 2014/15 is $374.0 M

$ Millions	2013/14		2014/15		2015/16	2016/17
	Budget	Actual *	Budget	%	ABP	ABP
Operations and Integrated Network Services	215.9	186.1	213.4	57%	239.8	206.8
Clinical Data Management Services	132.6	117.1	126.8	34%	148.4	144.4
Architecture, Standards and Planning	14.8	12.5	11.8	3%	14.8	14.8
Corporate Supports	36.8	28.9	22.0	6%	40.2	39.9
TOTAL	400.0	344.6	374.0	100%	443.3	405.9

Notes

- 2014/15 fiscal allocation is $374.0 M
- The $374.0 M is $26.0 M less that 13/14 of $400.0 M
- The $374.0 M is $29.4 M greater than the 13/14 actuals of $344.6 M

* Actual figures are unaudited

7.2   Multi-Year Total Expenditures

Total Expenditures
eHealth Ontario
($ Millions)

	2013-14	2014-15			2015-16			2016-17			2013-14 to 2016-17 Total		
	Budget	Last Yr ABP	Inc / (Dec)	Budget	Last Yr ABP	Inc / (Dec)	Latest Forecast	Last Yr ABP	Inc / (Dec)	Latest Forecast	Last Yr ABP	Inc / (Dec)	Latest Forecast
EHR Programs													
Chronic Disease Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diagnostic Imaging	17.8	19.5	12.1	31.6	0.4	25.4	25.8	0.0	25.8	25.8	37.7	63.4	101.1
Identity, Access and Privacy	20.6	23.4	2.3	25.7	17.2	1.6	18.8	0.0	10.2	10.2	61.3	14.1	75.4
Integration Delivery (cGTA)	33.0	27.7	(6.6)	21.1	14.9	13.1	28.0	0.0	25.5	25.5	75.6	32.0	107.6
Regional Hubs (cSWO) [1]	20.8	27.7	3.1	30.9	0.0	34.0	34.0	0.0	27.8	27.8	48.5	65.0	113.6
Regional Hubs (cNEO)	2.3	18.5	(14.2)	4.3	0.0	19.9	19.9	0.0	13.3	13.3	20.8	19.0	39.8
Provincial Common Services Integration	14.5	8.0	(1.6)	6.4	1.5	13.0	14.4	0.0	11.8	11.8	23.9	23.2	47.1
Integration Services	70.6	81.9	(19.2)	62.7	16.4	80.0	96.4	0.0	78.4	78.4	168.9	139.2	308.1
Medication Management	6.7	13.2	(10.9)	2.4	102.4	(100.0)	2.4	0.0	2.4	2.4	122.3	(108.4)	13.8
OLIS	10.1	29.9	(16.0)	13.9	0.0	29.0	29.0	0.0	26.2	26.2	40.0	39.3	79.4
Portal / Portlets	1.3	2.1	(0.7)	1.5	0.7	1.0	1.7	0.0	1.7	1.7	4.2	2.0	6.2
EHR Related Programs	**127.2**	**170.1**	**(32.3)**	**137.8**	**137.1**	**37.1**	**174.2**	**0.0**	**144.8**	**144.8**	**434.4**	**149.6**	**584.0**
Other													
Consumer eHealth	5.0	10.1	(7.6)	2.5	0.7	1.7	2.4	0.0	2.4	2.4	15.8	(3.5)	12.2
Physician eHealth	72.8	75.4	(12.5)	62.9	40.0	27.2	67.2	0.0	73.4	73.4	188.1	88.2	276.3
Other (LHIN Funding)	0.1	0.2	(0.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	(0.2)	0.1
Other Total	**77.8**	**85.6**	**(20.2)**	**65.4**	**40.7**	**28.9**	**69.6**	**0.0**	**75.8**	**75.8**	**204.2**	**84.5**	**288.6**
Programs	**205.0**	**255.8**	**(52.5)**	**203.2**	**177.8**	**66.0**	**243.8**	**0.0**	**220.6**	**220.6**	**638.5**	**234.1**	**872.6**
Information Technology Services Management	24.6	29.3	(4.0)	25.3	30.9	(0.3)	30.6	0.0	32.5	32.5	84.8	28.3	113.0
Infrastructure Services & Technology Planning	97.8	110.6	(21.3)	89.3	127.6	(26.1)	101.5	0.0	85.7	85.7	336.1	38.3	374.4
Technology Services	**122.5**	**139.9**	**(25.3)**	**114.6**	**158.5**	**(26.4)**	**132.1**	**0.0**	**118.2**	**118.2**	**420.9**	**66.6**	**487.5**
Operational Shared Services [2]	**44.7**	**39.1**	**8.2**	**47.3**	**25.0**	**19.7**	**44.7**	**0.0**	**44.7**	**44.7**	**108.7**	**72.7**	**181.4**
Corporate Services	17.6	23.2	(9.8)	13.4	25.7	(9.8)	15.9	0.0	15.9	15.9	66.5	(3.6)	62.9
Other Corporate Functions [3]	10.2	9.4	12.0	21.5	9.4	3.6	13.0	0.0	12.6	12.6	29.1	28.2	57.3
Corporate Functions	**27.9**	**32.7**	**2.3**	**34.9**	**35.1**	**(6.2)**	**28.9**	**0.0**	**28.5**	**28.5**	**95.6**	**24.6**	**120.2**
Corporate Expense Adjustment	**0.0**	**0.0**	**(26.0)**	**(26.0)**	**0.0**	**(6.2)**	**(6.2)**	**0.0**	**(6.2)**	**(6.2)**	**0.0**	**(38.4)**	**(38.4)**
Total	**400.0**	**467.4**	**(93.3)**	**374.0**	**396.4**	**46.9**	**443.3**	**0.0**	**405.9**	**405.9**	**1,263.8**	**359.5**	**1,623.3**

Notes

1. cSWO includes Clinically Valuable Project costs

2. Operational Shared Services includes Architecture & Standards, Development & Delivery, Project Management, Quality and Release Management

3. Other Corporate Functions includes Human Resources, Internal Audit, Legal, Privacy & Policy, Stakeholder Relations & Communications, Knowledge Management, COO and CEO

4. Differences due to rounding.

7.3 Multi-Year Capital and Operating

Capital & Operating Expenditures
eHealth Ontario
($ Millions)

	2013-14	2014-15			2015-16			2016-17			2013-14 to 2016-17 Total		
	Budget	Capital	Operating	Budget	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
EHR Programs													
Chronic Disease Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diagnostic Imaging	17.8	9.5	22.1	31.6	0.0	25.8	25.8	0.0	25.8	25.8	12.3	88.8	101.1
Identity, Access and Privacy	20.6	2.0	23.8	25.7	9.4	9.4	18.8	1.2	9.0	10.2	16.4	59.0	75.4
Integration Delivery (cGTA)	33.0	16.2	4.9	21.1	27.5	0.5	28.0	25.0	0.5	25.5	99.7	7.9	107.6
Regional Hubs (cSWO) [1]	20.8	6.6	24.2	30.9	20.8	13.2	34.0	12.7	15.1	27.8	51.4	62.1	113.6
Regional Hubs (cNEO)	2.3	0.6	3.7	4.3	13.0	6.9	19.9	6.4	6.9	13.3	20.1	19.8	39.8
Provincial Common Services Integration	14.5		6.4	6.4	6.5	8.0	14.4	5.0	6.8	11.8	15.8	31.3	47.1
Integration Services	70.6	23.4	39.3	62.7	67.8	28.6	96.4	49.1	29.3	78.4	187.1	121.0	308.1
Medication Management	6.7		2.4	2.4	0.8	1.6	2.4	0.8	1.6	2.4	2.0	11.9	13.8
OLIS	10.1	9.5	4.4	13.9	2.8	26.2	29.0	0.0	26.2	26.2	12.9	66.4	79.4
Portal / Portlets	1.3		1.5	1.5	0.0	1.7	1.7	0.0	1.7	1.7	0.6	5.6	6.2
EHR Related Programs	**127.2**	**44.4**	**93.4**	**137.8**	**80.8**	**93.4**	**174.2**	**51.1**	**93.7**	**144.8**	**231.3**	**352.7**	**584.0**
Other													
Consumer eHealth	5.0		2.5	2.5	0.0	2.4	2.4	0.0	2.4	2.4	0.7	11.6	12.2
Physician eHealth	72.8	0.3	62.6	62.9	1.8	65.4	67.2	1.2	72.3	73.4	3.2	273.1	276.3
Other (LHIN Funding)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Other Total	**77.8**	**0.3**	**65.1**	**65.4**	**1.8**	**67.8**	**69.6**	**1.2**	**74.6**	**75.8**	**3.9**	**284.7**	**288.6**
Programs	**205.0**	**44.7**	**158.6**	**203.2**	**82.6**	**161.2**	**243.8**	**52.3**	**168.3**	**220.6**	**235.2**	**637.4**	**872.6**
Information Technology Services Management	24.6	0.2	25.1	25.3	3.8	17.4	21.1	0.1	17.4	17.5	5.6	82.9	88.5
Infrastructure Services & Technology Planning	97.8	4.6	84.7	89.3	20.6	90.4	111.0	14.0	86.8	100.7	46.1	352.8	398.9
Technology Services	**122.5**	**4.8**	**109.8**	**114.6**	**24.4**	**107.7**	**132.1**	**14.1**	**104.1**	**118.2**	**51.8**	**435.7**	**487.5**
Operational Shared Services [2]	**44.7**	**3.2**	**44.0**	**47.3**	**0.9**	**43.9**	**44.7**	**0.9**	**43.9**	**44.7**	**6.2**	**175.2**	**181.4**
Corporate Services	17.6	3.6	9.8	13.4	0.0	15.9	15.9	0.0	15.9	15.9	5.2	57.8	62.9
Other Corporate Functions [3]	10.2		21.5	21.5	1.1	11.9	13.0	0.7	11.9	12.6	1.8	55.4	57.3
Corporate Functions	**27.9**	**3.6**	**31.3**	**34.9**	**1.1**	**27.8**	**28.9**	**0.7**	**27.8**	**28.5**	**7.0**	**113.2**	**120.2**
Corporate Expense Adjustment	**0.0**	**0.0**	**(26.0)**	**(26.0)**	**0.0**	**(6.2)**	**(6.2)**	**0.0**	**(6.2)**	**(6.2)**	**0.0**	**(38.4)**	**(38.4)**
Total	**400.0**	**56.3**	**317.7**	**374.0**	**108.9**	**334.4**	**443.3**	**68.0**	**337.9**	**405.9**	**300.2**	**1,323.1**	**1,623.3**

Notes

1. cSWO includes Clinically Valuable Project costs

2. Operational Shared Services includes Architecture & Standards, Development & Delivery, Project Management, Quality and Release Management

3. Other Corporate Functions includes Human Resources, Internal Audit, Legal, Privacy & Policy, Stakeholder Relations & Communications, Knowledge Management, COO and CEO

4. Differences due to rounding.

7.4   Multi-Year by Expense Type

Total Expenditures - by Expense Type eHealth Ontario ($ Millions)								
	2013-14		**2014-15**		**2015-16**		**2016-17**	
	Actual *	%	Budget	%	ABP	%	ABP	%
Salaries & Wages [1]	70.4	20%	78.9	21%	74.6	17%	74.6	18%
Benefits	26.1	8%	24.3	7%	21.9	5%	21.9	5%
Contractors	8.2	2%	5.4	1%	10.9	2%	10.9	3%
Hardware & Software	36.7	11%	41.6	11%	59.1	13%	46.0	11%
Professional Services & Non Consulting Services [2]	37.2	11%	46.2	12%	29.8	7%	16.2	4%
Facilities	11.1	3%	15.8	4%	12.3	3%	12.3	3%
Network	39.3	11%	34.1	9%	41.5	9%	44.2	11%
Transfer Payments	132.7	39%	155.8	42%	197.0	44%	189.3	47%
Other	4.1	1%	7.4	2%	5.6	1%	5.6	1%
Corporate Expense Adjustment	(2.4)	-1%	(26.0)	-7%	0.0	0%	0.0	0%
Expenditure Recovery [3]	(18.9)	-5%	(9.4)	-3%	(9.4)	-2%	(15.0)	-4%
Total	**344.6**	**100%**	**374.0**	**100%**	**443.3**	**100%**	**405.9**	**100%**

Notes

1. Includes Corporate Expense Adjustment in 2015/16, 2016/17.

2. Non consulting services include service contracts and non-consulting services (e.g. fixed fee deliverables based contracts).

3. Recoveries for Panorama from Health Services Cluster, DI/PAC

4. Differences due to rounding.

* Unaudited financials for FY 2013-14

7.5 Projected Revenue

The Agency receives all its revenue from the Ministry. This annual business plan represents the Agency's budget submission to the Ministry, which, if approved, will determine the government funding (revenue) received by the Agency.

7.6 Transfer Payments

eHealth Ontario is authorized to make transfer payment funding arrangements with qualified recipients who participate in projects in support of eHealth Ontario's mandate.

Transfer payment agreements (TPAs) set out the terms and conditions between eHealth Ontario and the recipient regarding the project details such as tasks, activities and project milestones. TPAs must be consistent with the transfer payment accountability directive.

Each TPA establishes obligations for each recipient's accountability including specific reporting requirements which are proportionate to the risks related to the scope of the project.

eHealth Ontario monitors transfer payment arrangements to ensure that recipients are delivering the outcomes and activities for which they have received funds. Monitoring includes regular project communications with the recipient, assessing results and reviewing regular status and financial reports from recipients in order to verify results and to resolve any outstanding issues on a timely basis. Progress payments are made consistent with the results achieved and corrective action is taken when the recipient is not meeting its contractual obligations.

The following charts are a summary of transfer payments.

7.6.1 Transfer Payments by Recipient, 2014/15
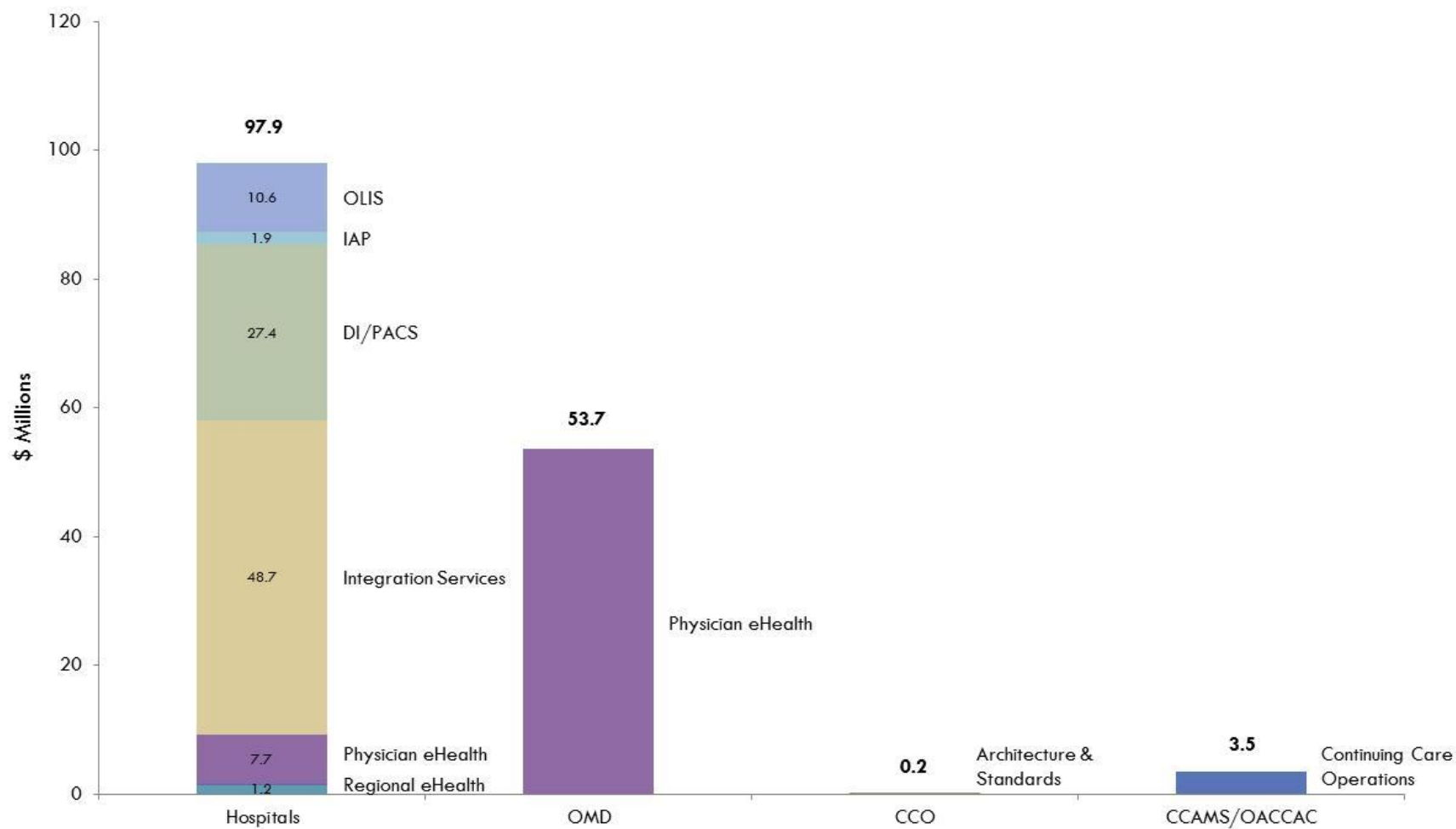
7.6.2 Transfer Payments Summary, 2014/15 to 2016/17
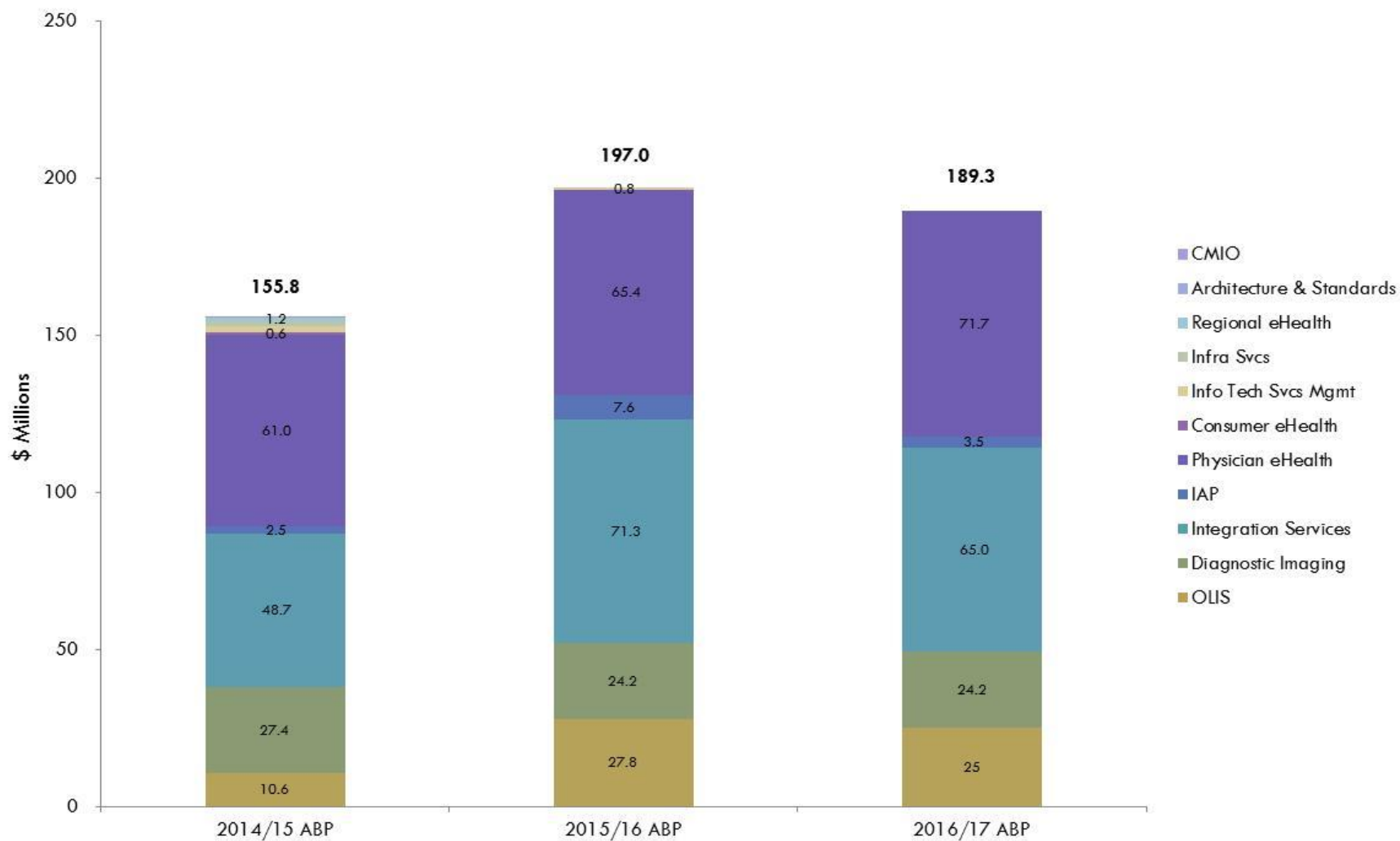
8   Procurement Plan

eHealth Ontario commits that all procurements will comply with the Agency's Procurement Policy (February 2013) and will uphold the Ontario Public Service standards for procurement. eHealth Ontario's Procurement Policy is designed to ensure that goods and services (including consulting services) and information technology are acquired in the most economical and efficient manner and through a procurement process that conforms to the following principles:

- Vendor access
- Transparency and fairness
- Value for money
- Responsible management
- Geographic neutrality and reciprocal non-discrimination

eHealth Ontario also commits to complying with mandatory requirements identified in the Procurement Policy, including (but not limited to) the following:

- Procurement Planning: Applies to both the annual procurement requirements and individual procurement activities and assists in identifying the potential supply source and procurement method, as well as determining what and when approvals are needed
- Procurement Value: eHealth Ontario must determine the total value of a procurement in order to determine appropriate procurement approval authority and procurement method
- Procurement Value Increases: When the actual value of a procurement increases, eHealth Ontario must ensure it has the appropriate procurement approval authority to continue and has used the appropriate procurement method
- Supply Source: eHealth Ontario must determine the appropriate supply source for the required goods and/or services taking into consideration the availability of Agency resources. Where internal Agency resources are not available, eHealth Ontario should consider using the following supply sources for goods and services in the order indicated below:
  - Ministry of Government Services Enterprise Vendor of Record (VOR) arrangements that are available to the broader public sector
  - eHealth Ontario VOR arrangements when that product or service is not available through an Enterprise VOR
  - Open competitive procurement process
  - Invitational competitive procurement process with some restrictions
  - Consulting Services Procurements: A competitive process must be used for all consulting services irrespective of the value of the procurement (some exceptions are listed in the policy)

eHealth Ontario has created a cross-functional procurement plan. The enhanced Procurement Management Plan/Tool will facilitate improved analysis and reporting to:

- Improve visibility on planned procurements and status
- Enhance understanding of timelines to complete the procurement cycle, ensuring delivery of goods/services in a timely manner
- Increase visibility of the planned spend with vendors
- Increase visibility of the Agency's planned enterprise-wide spend by category (e.g., hardware) allowing:
  - Aggregation of requests/requirements into fewer procurements
  - Increased savings
  - Reduced effort
  - Enhanced linkage between financial results (spend) and existing contracts
  - Improved ability to anticipate and explain variances

eHealth Ontario will continue to leverage existing vendor of record arrangements when possible. In addition, the Agency will continue to establish contracts which are focused on deliverables and managing vendors against agreed upon timelines, service levels and price. Fixed fee deliverable agreements also provide the following benefits:

- Shift some risk to the vendor

- Ensure value for money
- The Agency gains access to the vendor's technical expertise, methodologies, tools etc., which can result in higher quality outcomes at a lower cost