



INDUSTRY RESEARCH INITIATIVE

For

The Office of the Superintendent of Financial Institutions
Supervision Technology Tools Renewal (STTR)

July 06, 2016

1- Opening Remarks and Introductions

- Mary McGarry-Mutton, Director, Enterprise Architecture and Planning



- Sabina Faust, Manager, Procurement and Contracting



Your hosts will oversee the morning session; facilitate the question and answers; and keep everyone on track.



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- Welcome everyone. (Sabina)
 - Thank you for taking the time to attend our session
- Introduce ourselves (Sabina and Mary)
- Introduce OSFI and the STTR Requirement (Mary)
- Why you are here and the purpose of the IRI (Sabina)
 - OSFI is requesting your valuable input based on your experiences with similar projects
 - Your input will help influence the development of the business case for the project
 - Cheryl Morris, a Procurement Consultant from PPI Consulting will be assisting us in taking notes today.

Next Slide

- Agenda Review (Sabina)
- Turn it over to the four amigos to introduce themselves (Sabina)

Agenda / Sommaire

1. Opening Remarks and Introductions
2. OSFI's Business Requirements
3. OSFI's Information Requirements
4. OSFI's Architecture
5. STTR Project Scope
6. OSFI's Proposed Timelines
7. General Questions and Answers
8. Closing Remarks



We have allotted time after each presentations for questions and answers on the given topic so we ask that you hold questions until the end of each presentation.

1- OSFI Member Introductions

- Director, Supervision Sector



- Enterprise Architect



- Application Architect



- Data Architect



Each individual would introduce themselves with

- Name
- Role at OSFI and role within the project
- Length of time at OSFI
- Background and experience

2. OSFI's Business Requirements

- The project was initiated in response to concerns raised by many in Supervision to the inefficiency or lack of adequate tools to support staff in our core work.
- The supervision group has been subject to significant change since the onset of the financial crisis, resulting in less time for supervisors to develop their judgments related to risk assessment. Other challenges include:
 - Additional demands for increased supervisory intensity and effectiveness
 - Expectations to meet increasing supervisory standards (i.e., with respect to the quality, timeliness, and documentation of its risk assessments)
 - Sharp increase in staffing
 - Little time to innovate and adapt our supervisory processes to the rapidly changing environment



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Some of the observations from the business process review

- Not optimizing the wealth of information in structured and unstructured sources of information across Supervision.
- Staff are frustrated with the difficulty in finding relevant critical information to perform their duties.
- challenge in cross-functional collaboration and communication between teams
 - Collaboration is difficult, inefficient, unstructured and not supported by tools.
 - Collaborating is characterised by chains of email, physical meetings, scheduling challenges,
 - People expressed a need for tools and platforms that helps unite people and ideas
- Processes lack discipline, are a consolidation of compromises and suffer rampant manual work-arounds.
- Processes are inconsistently applied across different groups

About this project (STTR)

- Goal:
 - Enhance and support the capabilities of our people to focus on “work that matters” (i.e. get the risk assessments and interventions right)
- How?
 - Leverage technology and find efficiencies in our supervisory processes,
 - Improve the planning process,
 - Streamline documentation (‘once and done’ concept),
 - Enhanced knowledge management and information sharing,
 - Better collaboration between teams,
 - Explore opportunities to eliminate gaps in information flows,
 - Enhance management reporting and oversight,
 - Reduce the level of frustration amongst supervisors regarding,
 - supervision processes and systems.

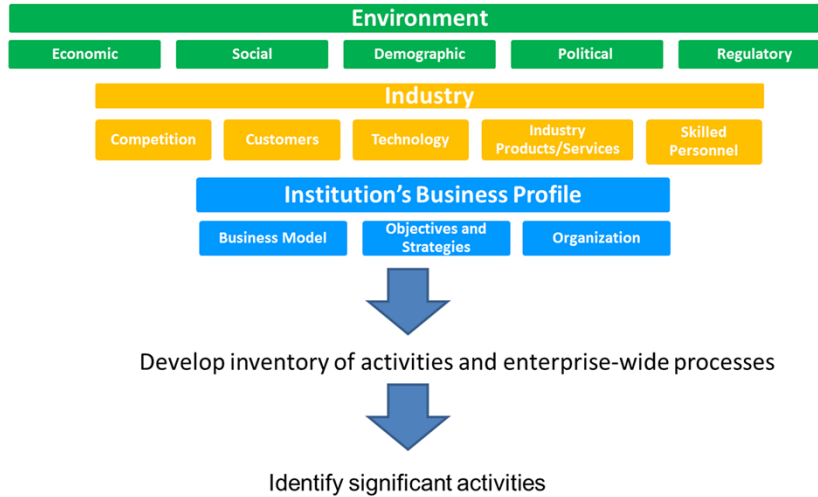


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Feedback on future state from BPR

- Access to information and transparency on cross functional decisions and their impacts.
- Supervisors have access to vital information that supports timely analysis.
- Increase our efficiency with easy access to content, helping teams improve decision making
- a single view of our regulated institutions and risks cross silos and functional boundaries
- technology that enables and values collaboration, facilitates access and sharing of content
- A move away from static Word documents to dynamic content that allows for revision control, real time editing and collaboration
- In summary
- An intuitive, user-friendly interface that connects supervisors to content and necessary information to focus on work that matters.

Identification of Significant Activities



Supervisory Framework and the Risk Matrix

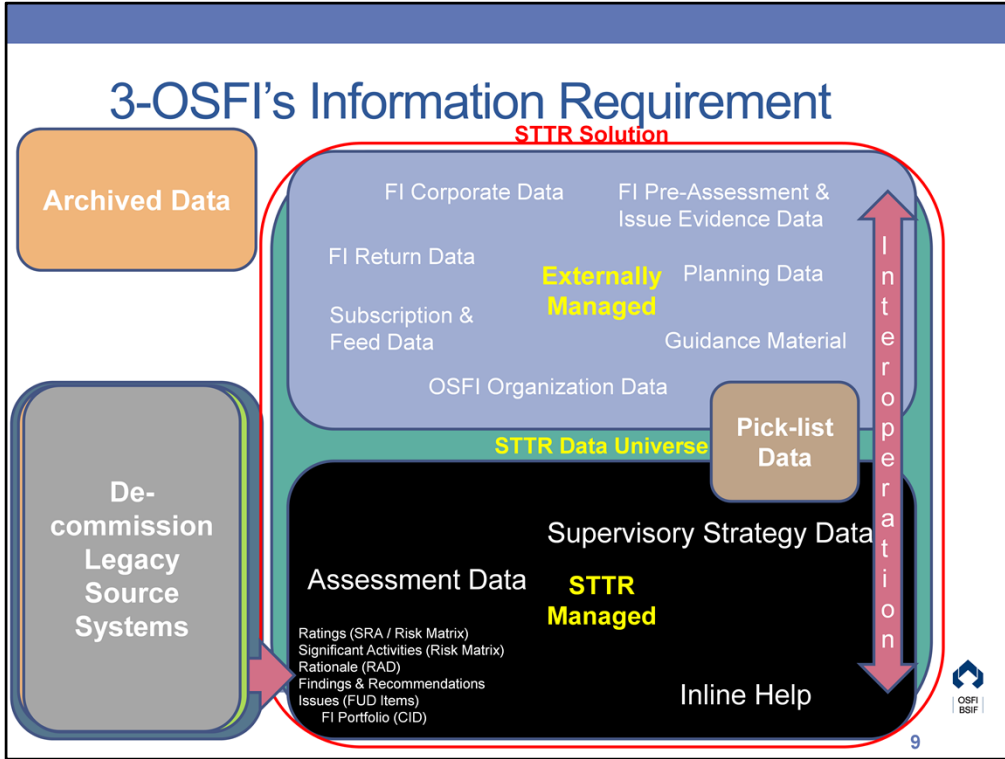
Significant Activities	Inherent Risks					Quality of Risk Management						Net Risk	Direction of Risk	Importance	
	Credit	Market	Insurance	Operational	Regulatory Compliance	Strategic	Operational Management	Financial	Compliance	Actuarial	Risk Management				Internal Audit
Significant Activity 1															
Significant Activity 2															
Critical Process 1															
Overall Rating															

	Rating	Direction	Time Frame
Earnings			
Capital			
Liquidity			
Composite Risk			

Intervention Rating



3-OSFI's Information Requirement



4-OSFI's Architecture

Key Current State Technology Standards

- EDRMS/RAD
 - SharePoint 2013 SP1
 - Office Web App Server for SP 2013
 - RecordPoint for SharePoint 2013
- BI Reporting and Analytics
 - Cognos 10.2 (Analysis Studio, ReportNet)
 - SQL Server Analysis Services 2014
 - Power Pivot for Excel 2010
 - Power Query for Excel 2010
- RDBMS and Master Data Management
 - SQL Server Enterprise Edition 2014 SP1
 - Microsoft Master Data Services 2014
- Email
 - Microsoft Exchange Server 2010
 - Colligo Email Manager 5.2
- Productivity
 - Microsoft Office Professional Plus 2010
 - Microsoft Visio Premium 2010
- Browser
 - Internet Explorer 11
- OS
 - Windows Server 2012 R2
 - Windows 7 Enterprise SP1
- Languages/Frameworks
 - .Net 4.5
 - HTML5, JavaScript, CSS
- Development Tools
 - Team Foundation Server 2015
 - Visual Studio 2015



Note: Upgrades could occur within the STTR timeframe

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OSFI is essentially a Microsoft/Cognos-centric IM/IT shop.

This slide presents formally recognized technology standards (blessed by OSFI's Enterprise Architecture Council), as well as a few additional de facto standards (in the EAC pipeline). This list is actually a subset of the technologies used by OSFI, however, it includes key standards that are expected to be relevant for STTR system development initiatives.

OSFI utilizes SharePoint both as an EDRMS system as well as a rapid application development platform. Our SharePoint 2013 deployment employs a number of platform add-ons, such as Icefire's PointFire for SharePoint 2013 (which provides multi-lingual support) and Bamboo Solutions web parts. Colligo Email Manager is an Outlook add-on that enhances drag-and-drop of emails into SharePoint. RecordPoint is another SharePoint add-on that will be introduced before fiscal year end to enhance record management functionality. OSFI also has SharePoint 2010 farms (SP2) supporting its Internet web presence and several legacy applications. An upgrade of these applications and the Internet farm to use SharePoint 2013 is on the IM/IT roadmap.

OSFI has a mature BI practice. OSFI's BI stack consists of a combination of Cognos tools with a Microsoft OLAP provider. Note that for the STTR system we expect to rely on real-time analytics within Microsoft Dynamics CRM to a greater extent than our traditional BI stack, though we may have to surface some of our existing reports through the STTR platform and detailed requirements might lead to new BI deliverables. We currently have near-term projects on our roadmap that will use Microsoft self-service BI capability, such as

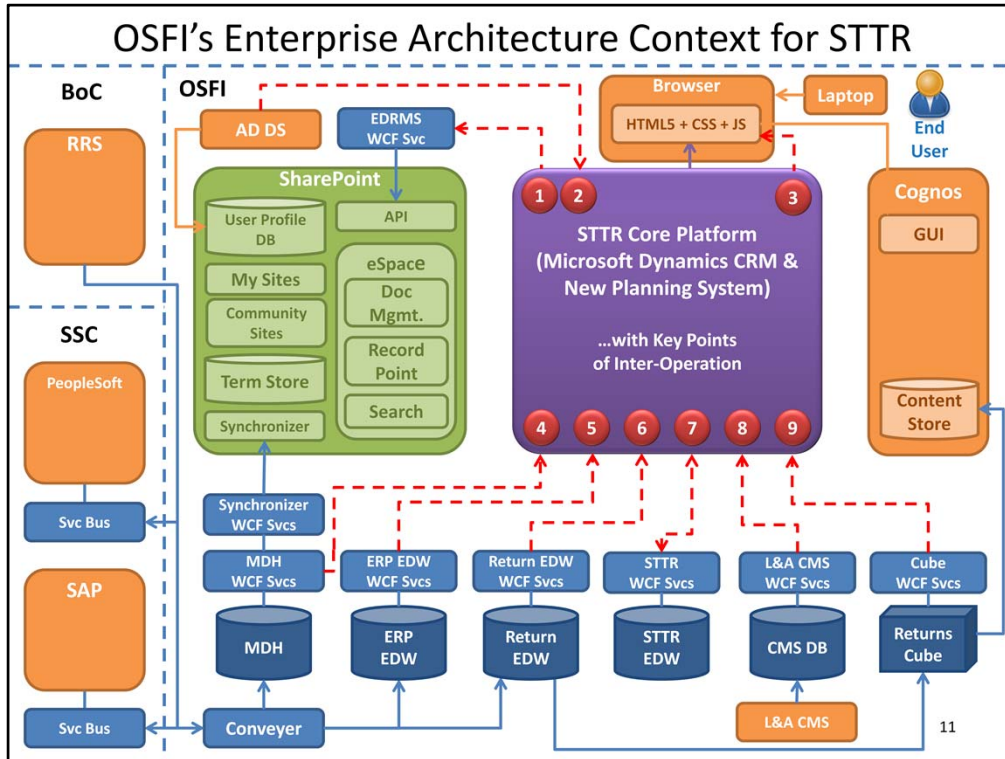
Power Pivot and Power Query, so a BI self-service capability is in play if needed. Microsoft SSIS is OSFI's ETL tool of choice. As we will see in the next slide, OSFI has a Master Data Hub and a number of Enterprise Data Warehouses. Recently, we have decided to adopt Microsoft's Master Data Service (a SQL Server data service) to help business clients manage their own master data where a System of Record line-of-business application is not available to do so.

As we will see on the next slide, OSFI employs a number of mature SOAP and RESTful web-services that have been developed in-house using the Windows Communication Foundation (WCF) framework. The Microsoft Entity Framework is used for relational-to-OO mapping. Our programming language of choice is C# (though we do have legacy VB and PowerBuilder applications that we are actively working to retire) and we employ the usual client-side scripting languages. We have not yet selected a standard set of JavaScript frameworks, but we are exploring the use of frameworks that are promoted by Microsoft; namely, Angular and KnockOut.

At this time, our de facto standard browser is IE 11. Although we currently permit the use of Chrome, this is under review.

The technology standards on this slide represent OSFI's current state for system development projects. However, we do have upgrade initiatives on our IM/IT roadmap. The most likely upgrades in the STTR development timeframe would be for Office, Exchange and Windows Server. This fiscal year we plan to explore the feasibility of a SharePoint 2016 upgrade within the STTR timeframe. We do not currently have plans to move to O365, but the use of GoC certified cloud offerings is getting legs due to the new cloud centric GoC IT strategy. We'll have to wait and see how that strategy develops.

Finally, in addition to the above listed standard technologies, there are a number of legacy line-of-business applications that provide key business capabilities. We will see some of these on the next slide, as they relate to the STTR Core Platform.



This slide depicts (at a very high level) the enterprise architecture context within which new technology standards for STTR must operate. The diagram can be related back to the logical architecture deck posted on buyandsell.gc.ca. The colors in this diagram match the corresponding functional module colors used in the logical architecture models.

The key functional gap for OSFI's existing technology standards and applications (relative to the STTR high level requirements) is represented in the logical architecture as a functional module called the "STTR Core Platform" (colored purple). The STTR options analysis exercise has recommended Microsoft Dynamics CRM as a new technology standard that can address most of this gap, while recognizing that out-of-the-box Dynamics CRM planning capability will not meet all of the requirements (in particular, tracking of actuals against Supervisory plans). Given that OSFI has also recognized a need for a new corporate planning and time-tracking system, our expectation is that Dynamics CRM will interoperate with this new planning system to address the remaining planning requirement gap for STTR. A Business Process Review for this new planning system is currently in-flight and will be completed by the end of FY 2016/17.

The purple block in this slide positions this logical STTR Core Platform module (realized as a combination of the Microsoft Dynamics CRM platform interoperating with the new planning system) within the broader enterprise architecture at OSFI. The nine numbered red connectors indicate probable points of interoperation between the STTR Core Platform and other key architectural components that are likely to be used in an STTR solution.

Connector 1 indicates that Dynamics CRM must interoperate with OSFI's standard EDRMS application, called eSpace. eSpace is a full trust SharePoint application that various client legacy application interoperate with to store, retrieve and update documents. Interoperation is mediated by a SOAP web-service, called the EDRMS Service, that is able to transparently negotiate the rich, custom and evolving OSFI information architecture for eSpace for client applications. The STTR system is just another client that will use the EDRMS service for eSpace interoperation (as opposed to using out-of-the-box Dynamics CRM SharePoint integration, which does not conform to eSpace specifications).

In addition to illustrating the eSpace application, the green block that represents SharePoint also shows that termsets are synchronized with external data sources via the OSFI Synchronizer (in blue), a custom .Net application. The Synchronizer is currently in use for eSpace and other legacy SharePoint applications. Furthermore, the green SharePoint block indicates that it is likely that out-of-the-box SharePoint My Sites and Community Sites functionality will be used to support some of the collaboration and social computing requirements for STTR. Although not shown, the use of a SharePoint App Store is also a possibility for STTR.

Connector 2 recognizes that Dynamics CRM and the planning system must be synchronized with Active Directory accounts.

Connector 3 indicates that legacy user interfaces (e.g., for Cognos reports, or OLAP analysis) might be embedded into STTR forms/dashboards through iFrames or client-side JavaScript calls to platform services.

Connectors 4, 5, 6 and 8 indicate that key Supervisory information that is stored external to the STTR Core Platform will need to be made available on a real-time or batch basis, either through WCF data services (in blue) or a view layer in the source database (darker blue). The Master Data Hub is an existing data warehouse for master data, but other MDS databases and Systems-of-Record databases also fall under the umbrella of master data sources. The Return Data EDW provides access to regulatory return data that is collected in the Regulatory Return System (RRS), a tri-agency system hosted at the Bank of Canada. RRS data exports are brought into OSFI by the Conveyor application for ETL into the MDH and Return Data EDW. The ERP EDW provides access to data that is managed by externally hosted HR and Finance ERP's (SAP and PeopleSoft) and cached at OSFI. Note that, currently, OSFI uses an on-prem application called HR Director for HR management, but a move to PeopleSoft is on our roadmap. Also note that there have been indications that a GoC service bus will eventually be provided for interoperation with SAP and PeopleSoft has been proposed, but the service bus is not shown here. Currently, SAP data exports are brought into OSFI by the Conveyor application for ETL into the ERP EDW (and visa versa). The CMS database is the application database for a line-of-business case management system called L&A CMS. It is used to manage the approval process for new FRFI's and there is a data hand off to Supervisors. We might find that it is sufficient to integrate L&A CMS screens via an iFrame instead.

Connector 7 represents the potential need for an STTR data warehouse to support, for example, reporting and/or ad hoc analysis that cannot be accomplished in the STTR Core Platform itself. Note that data could flow both ways in this case.

Connector 8 represents the ability to access calculated data in the SSAS returns cube that is not available via the Return Data EDW. It is not clear that this will actually be needed, given that calculated data is available through the Cognos reports and the Cognos front-end application interface, but the connector has been included for discussion purposes.

Currently, OSFI's mobility strategy is focused on the use of BlackBerry devices (not shown) and light-weight laptops running Windows. Given that mobility requirements for STTR have lower business value than other requirements, OSFI's mobility strategy might change by the time that this capability is addressed. Note that Offline STTR access (with the ability to resynchronize changes with the online system) is an important requirement for STTR as is secure VPN access to the system from locations outside of OSFI (e.g., from home, from FRFI sites, from hotels while traveling, etc.).

5-The STTR Project Scope

Activity	Primary Responsibility
Implementation of the core technology platform (Dynamics CRM) and any third-party tools in the production environment	OSFI
Identification of third-party tools required to complete the solution	SI
Configuration of Dynamics CRM to support HLBRs for: <ul style="list-style-type: none"> • FRFI 360 • Case Management • Knowledge Management • Risk Profile Management • Reporting and Dashboards • Workflow and Governance 	SI
Configuration of existing OSFI SharePoint platform to support HLBRs for: <ul style="list-style-type: none"> • Collaboration and Social 	SI
Implementation of an external portal and configuration of Dynamics CRM and SharePoint Platforms to support HLBRs for: <ul style="list-style-type: none"> • FRFI Information Management 	SI

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- Assume that the initial implementation will be on-premises in OSFI's data centre
- SI will be expected to provision development environments, following configuration specified by OSFI.
- OSFI will supply test data
- Third-party tools may be required for
 - Rich text support
 - Tracking of changes
 - Scenario analysis
 - Text analytics
 - Etc.
- Anticipate that we will require community sites / team sites, and probably MySites to support Collaboration and Social requirements
 - Current standard is SharePoint 2013
 - Will be conducting a SP 2016 upgrade assessment this fall, which will determine the timing of moving to SP 2016.
- External portal would be used to collect data and exchange information with FRFIs

5-The STTR Project Scope

Activity	Primary Responsibility
Integration of the core platform with OSFI's enterprise systems <ul style="list-style-type: none"> • eSpace – SharePoint-based EDRMS • BI – SQL Server-based data warehouses, Cognos based reports and analytics • Master Data Hub – SQL Server • Enterprise Planning System – TBD 	SI
Data migration and archival (structured and unstructured)	SI
Training and Organizational Change Management to support OSFI staff during rollout	OSFI (with SI support*)
Decommissioning and archival of legacy system components	OSFI



* Input Requested: What role can the SI play to support OCM and training activities?

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- Data migration will include migrating content from documents to structured entities in CRM. Volume is low, but complexity is high, so automated migration is likely cost-prohibitive.

5- Optional Scope

Activity	Primary Responsibility
Options analysis and recommendation and procurement* of a COTS solution for Enterprise Planning	TBD
Implementation of COTS solution for Enterprise Planning	TBD
Configuration of Enterprise Planning tool to support HLBRs for: <ul style="list-style-type: none"> • Planning and Resource Management 	TBD
Rollout of Enterprise Planning solution to all OSFI sectors	TBD
Migration and archival of legacy planning data (structured) for OSFI Supervision sectors	TBD
Training and Organizational Change Management to support rollout of planning system to OSFI Supervision sectors	OSFI (with SI support)
Decommissioning and archival of legacy planning system components	OSFI

* Subject to approval of procurement strategy.

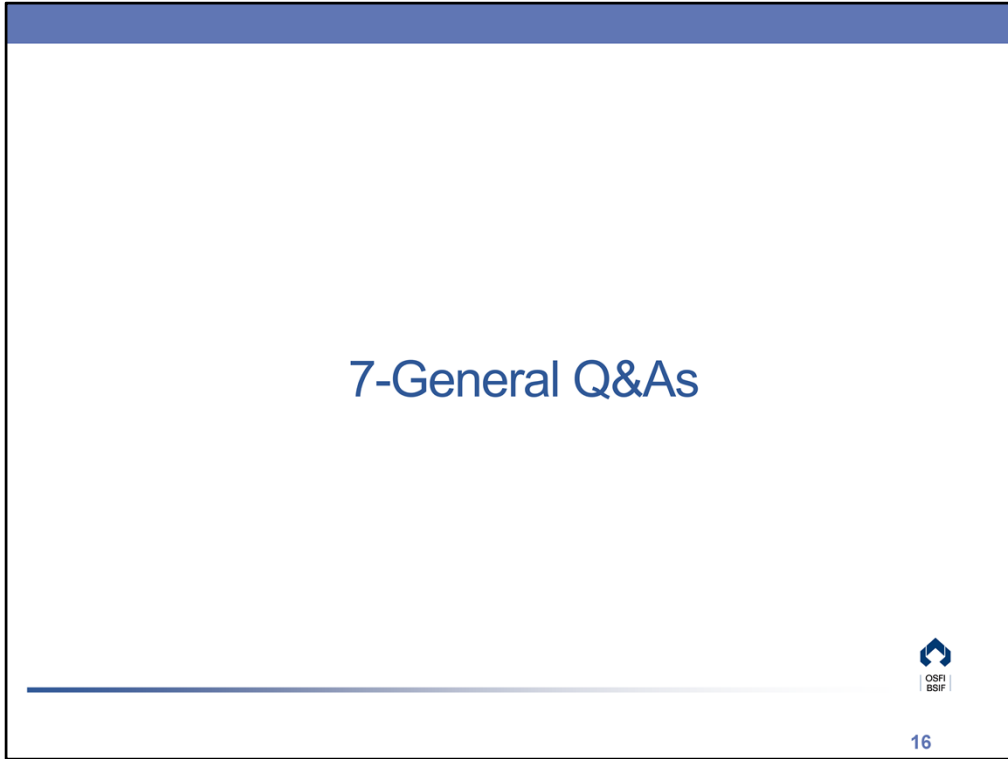
6-OSFI's Proposed Timelines

- Industry Research Initiative closes August 8th
- Potential for follow-up of individual responses
- Business Case to be presented to OSFI IT governance in the fall
- Public Services and Procurement Canada (PSPC) will hold contract authority for the procurement process
- Aiming to issue an RFP during the summer 2017



Feedback received through this IRI will be used to influence OSFI's business case for the STTR project.

We will then work with PSPC to develop the procurement strategy.



Were the questions in the IRI clear?

Is further clarification needed?

8-Closing Remarks

In summary, your input is requested in the following four areas:

1. Implementation strategy and approach? Risks & challenges?
 2. Methodology and 3rd party tools?
 3. Data migration approaches?
 4. Interest in delivering a 2nd dual work-stream relating to planning?
- Process questions may be directed to Sabina.Faust@osfi-bsif.gc.ca
 - Thank you for your participation



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We are requesting your feedback in the following four areas

We encourage your input and we will use this input to influence the business case cost, level of effort, risk and complexity estimates

We value your input as experts in the field as it will help ensure that we “get it right”

We are also reaching out to OGDs who have completed similar projects using MS Dynamics CRM