## 1 Governance Risk

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
1.1 Senior Management Control Framework			
NSERC management has established an internal control framework	At this point in time it is evident that senior management supports the project and sees it as one of the main priorities	М	<b>Recommendation:</b> It is recommended that the

NSERC management has established an internal control framework that includes a multi-level committee structure with roles and responsibilities. E-Business is dealt with through this structure by delegation to specific committees.

- Management Committee is the senior management level within the organization.
  - The President chairs this committee.
  - Membership includes Director Generals and Directors, who report directly to the President.
  - Acts as Steering Committee for project
    - ensures project is consistent with the Council's organizational objectives
    - approves scope, goals and objectives.
  - Allocates funds and resources and provides policy framework.
  - Have not been many recent discussions or approvals with respect to the project.
  - Several people interviewed were not clear that this was the eBusiness Steering Committee.
  - There was agreement that this project is a NSERC priority.
- Operations Committee (Ops Ctee) is a larger forum, involving people reporting to the Management Committee.
  - Decisions made are operational in nature.
  - Members have significant business expertise and organization knowledge
  - No specified role or responsibilities with respect to e-Business project.
    - Concern voiced about what the role should be a

At this point in time it is evident that senior management supports the project and sees it as one of the main priorities of the organization. A governance structure has been put in place. There are several areas of concern that the audit feels should be considered in the management framework of the project.

- The Operations Committee has no official role and yet they have extensive experience and expertise in the program areas that will be impacted significantly by the implementation of eSolutions.
- Director level key to change management and implementation but no official role.
- The Project is a business driven project yet the Project Director reports to the Director General, CASD. Sponsor should be from a business area.
- Not an IT project and must not be perceived that way.
- Project consists of subprojects. There should be business sponsors and sign-offs identified for each.
- There will be partnerships with other agencies. This part of the governance structure has yet to be identified.
- Roles and responsibilities need clarification and to be communicated to the entire organization.
- Project governance structure not yet approved by Steering Committee.
- There are strong linkages to other projects but formal communications and management are not clear.

It is recommended that the governance structure be reviewed, with the aim of strengthening the framework, including:

- project organization key roles, responsibilities, resources
- monitoring change management, scope management
- communications linkages among initiatives.

It is recommended that the governance structure be documented in the Project Charter and that the Project Charter be approved by the Steering Committee.

CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
The governance structure needs to be reviewed and additional elements considered.		
A strong clearly identified governance structure is a critical		
success factor for scope management, keeping the project		
the by an stakeholders over the full duration of the project.		
Risk is medium.		
	The governance structure needs to be reviewed and additional elements considered. A strong clearly identified governance structure is a critical success factor for scope management, keeping the project in sync with the strategic directions of the organization and other projects, and ensuring participation and support for the by all stakeholders over the full duration of the project.	The governance structure needs to be reviewed and additional elements considered. A strong clearly identified governance structure is a critical success factor for scope management, keeping the project in sync with the strategic directions of the organization and other projects, and ensuring participation and support for the by all stakeholders over the full duration of the project.

### 1.2 Change/Scope Management

Elements of the scope have been delegated by Management Committee to Project Director.

- Scope Management
  - Steering (Management) Committee has accountability for approving the project scope and any changes.
    - Scope has yet to be approved.
  - Project Director has overall responsibility within the boundaries set by Management Committee
  - General scope and its boundaries are being defined as part of Accenture work.
    - eVision statement being defined "NSERC will deliver services to its communities of interest through a robust internet portal that will provide for information sharing, collaboration, grant and scholarship applications, and award application".
  - Concern by interviewees as to what exactly is the scope of the project.
    - Feel the scope is being developed and priorities being set but not there yet.
    - Workshops on eBusiness presented a wide range of possible functionality.
    - The result is user expectations are varied and high.

The management framework has been put in place to manage project scope. This includes any changes as the project evolves.

The recent activities to develop the eBusiness Strategy Plan are a good effort to define the high level scope for the project. The related documentation demonstrates how complex and large the project could be and how difficult it will be to manage the scope (functionality, budget, and schedule).

The Steering Committee has not approved the scope of the project and this is a key sign-off. There are inherent risks of scope creep until it is defined specifically and approved. Explicit scope definition is necessary for user expectation management. At this point in time user expectations are high. There is a risk that user expectations will exceed what is feasible and this will have a long term negative impact on user acceptance of what ebusiness solutions are implemented.

Disciplined scope management ensures a project has the ability to adapt to internal and external changes that always occur for multi year projects. The eBusiness Project needs to be more disciplined in its scope management process.

#### Risk is medium/high

- Other key projects/initiatives both internal and external
  - External Government on-line, Services Improvement Initiative
    - TBS will apparently require Departments and Agencies

There is a risk that the eBusiness project will be impacted or will impact on a number of internal and external initiatives. There is a risk of duplication of scope/effort or of initiatives heading in opposing directions or of impacting on each M/H **Recommendations:** 

It is recommended that the Project Director ensure project scope management is in place, and includes:

- scope definition and approval for the eBusiness project
- communication and coordination between the eBusiness project and other key initiatives, and within management.

М

It is recommended that the Management Committee and the Operations Committee establish an integrated process for highlevel monitoring of key strategic

- Joint external initiatives common CV
- Internal initiatives: lightening the load, program consolidation, peer review processes.
  - Initiatives at varying stages in their development.
  - Initiatives have not all defined their scope and management framework.
  - Accountability assigned to several individuals in various parts of organization.
  - Various levels of integration with eBusiness Project required.
  - Could impact on each other and directions taken.
  - It was pointed out that there is a common thread of subject matter and resources involved in the various initiatives.
  - There is no formal framework for managing the initiatives.
- Potentially many services will be built and delivered in partnership with other research agencies.
  - Governance of partnerships not addressed yet.
  - May need some variation in the structures depending on the partnership environments.

other's schedule. The projects are interrelated with respect to subject matter, resources, and timing so need to be monitored at a higher level. The initiatives in several cases will interface the clients of NSERC so a coordinated effort is necessary to minimize the burden and duplication. The initiatives should share information.

There is a risk of not meeting some of the requirements that have been established by Treasury Board Secretariat as part of government wide initiatives.

Medium risk of initiatives impacted each other negatively.

and tactical initiatives.

#### **1.3 Investment Management**

Investment management is a process of resourcing that ensures anticipated benefits are delivered. The eBusiness project is being described as the means to improve the efficiency and effectiveness of the business process at NSERC.

- Benefits definition usually defined in the project business case.
  - Business case not yet defined. Part of it will be in Accenture delivery model and plan. Emission statement is
    - To transform its internal processes.
    - To optimize its use of information technologies.
    - To strengthen its information and knowledge management services and services capabilities.
    - To develop a broad range of easy-to-use and valueadded electronic services to be delivered through a single electronic window (portal).
  - The benefits derived are very general and hard to measure.
    - Hard to quantify.
    - Strategy Plan to include costs, risk assessment and high-level implementation plan.
- Resource levels not yet established. (at time of audit).
- Benefits measurement includes a baseline benefits definition and process/system to measure what is delivered.
  - Not yet addressed by project.

At this point in time it is not possible to ascertain if the anticipated benefits will be achieved and if there are sufficient resources to accomplish eBusiness activities. It is assumed that the benefits and costs will be defined in detail in the short term.

#### Low/Medium risk.

L/M

No recommendation at this time. Audit monitoring of business case progression suggested.

## 2 Business Risk

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS &
			RECOMMENDATIONS
2.1 Requirements Management			

It is anticipated that eBusiness will have a major impact on how NSERC business processes are carried out.

- Main business function of NSERC offers funds for research in three broad areas: research grants; scholarship (involving students); and research partnerships.
- Major stakeholders and users are: researchers/students, universities, peer reviewers, private industry, government, general public, and NSERC staff.
- Delivery Model sees four functionality-based categories of eServices at NSERC.
  - EApplications: electronic submission of application; on-line status of applications and awards; electronic provision of relevant material for application review; on-line submissions of reviews; and post award progress and financial reporting.
  - Collaborating/Networking: on-line communities; and virtual meetings.
  - Information Sharing: common CV/researcher database; industry partner database; database of NSERC research and impact content; links to related institutions/organizations; electronic organization and sharing of corporate knowledge; program decision tree; enhanced job posting database; management of usernames and passwords; electronic selection of external reviews.
  - E-admin: proactive electronic information dissemination; electronic management of information; post-award financial reconciliation; electronic procurement and payment; electronic direct payment; and volunteer coordination services.

The efforts over the last few months to develop an eBusiness vision and strategy have been positive. The development of the delivery model and define of services is a good process to define high-level requirements and to help develop a common understanding of eBusiness. The process is facilitating the organization to set priorities for eSolutions.

Requirements management is a difficult task for any project but it is critical for success. It is essential that the knowledgeable users at the appropriate level articulate the requirements (eg. management must articulate its information needs). Unless there is a structured and rigorous process that records requirements, it is easy to miss requirements, mis-interpret, or oversimplify complex business rules and processes.

The eBusiness project has not yet established a formal process for requirements management. The risk of not successfully identifying requirements and translating them into eSolutions is high. There are extenuating factors to complicate the process: there are users both internal and external to NSERC; the possibility of partnerships with other research organizations in developing eService requirements; the possibility of using other delivery modes (external delivery alone; home alone; external delivery together; and cooperative in-house); and the complexity of an overall project with many sub-projects.

There will be need to be a cultural change. The

#### M/H Recommendation

It is recommended that the Project Director - in collaboration with the Director, ISD - ensure a formal requirements management process is developed and implemented, and that the

Requirements management process be integrated into the development methodology.

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
<ul> <li>Document provides high level description of each of 23 different services</li> <li>Process used to determine most partnership framework (appropriate delivery mode).</li> <li>Modes are: external delivery alone; home alone; external delivery together; and cooperative in-house.</li> <li>Based on business and technical considerations, delivery guiding principles and dependencies among services.</li> <li>For each eService included current and future capability descriptions, target communities; marketplace examples; rationale for recommended delivery modem and anticipated</li> </ul>	requirements management process must be more disciplined and rigorous. Users must take accountability for identifying and signing off requirements. The risk is requirements will continue to grow and this makes it difficult to implement a solution. Requirements are never stagnant but they do have to be frozen so a solution can be implemented. After that the change management process is used to implement new requirements. <b>Medium/high Risk.</b>		
<ul> <li>internal impacts.</li> <li>Priority setting process was carried out with Operations Committee.</li> <li>Rank the eServices in order of priority.</li> <li>Want to achieve some quick successes.</li> <li>Requirements general – flexibility, simplicity, data integrity and data retrieval functionality.</li> <li>Management information requirements need to be included.</li> </ul>			
<ul> <li>Security and access requirements.</li> <li>Information processed will contain personnel information (usually classified at Protected B level).</li> <li>May be requirement to protect at higher level (patens, trade secrets).</li> <li>Statement of sensitivity and threat risk assessment will need to be reviewed.</li> </ul>			
<ul> <li>Requirements of external clients and their environments.</li> <li>Sending out survey on eBusiness opportunities.</li> <li>Seeking input on application process, peer review process, awards management, and other services (harmonization of common requirements, availability of chat room, automatic receiving NSERC publication etc.).</li> </ul>			

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
<ul> <li>Other internal initiatives will seek advice/input from same community.</li> <li>Risk of overburdening an already overburdened group.</li> <li>Requirements – management of recorded information (i.e. government information holdings and ATIP implications) and finance (reconciliation. Payments etc.)</li> <li>Not clear how these will be managed.</li> </ul>			
<ul> <li>EBusiness is one umbrella project with many sub-projects</li> <li>Process to collect and maintain requirements complex.</li> <li>Coordination and integration of managing requirements is complex.</li> <li>Complexity of dealing with external client requirements.</li> <li>If working with partners (other research organizations) their requirements must also be identified and managed.</li> <li>No formal process evident for requirements management.</li> </ul>			

#### 2.2 Solution Design

Process to translate business requirements into the solution is complex.

- Potentially four modes of delivering the solutions.
  - External delivery alone delivered by third party but no shared services with other research partners.
  - Home alone custom developed in-house staff or contractors or combination.
  - External delivery together common to other research partners.
  - Cooperative in-house with a partner but no third party provider.
- Based on Delivery Model document there will be a variety of modes used to deliver the solutions.

This is an inherent risk because eBusiness is a fairly new and very dynamic area.

#### Medium risk.

М

It is recommended that the process for selection of the solution delivery mode(s) be independently reviewed at the appropriate time.

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
<ul> <li>Security Framework – to be developed.</li> <li>Will be complex with various modes of development and operation.</li> <li>Necessary to integrate across the eSolutions.</li> <li>Internal Control Framework – to be developed.</li> <li>Accounting, integrity and management controls.</li> <li>Management trails, data security and privacy.</li> </ul>			
2.3 Management of Change			

The various eBusiness solutions will involve change.

- Delivery Model identified areas requiring change
  - Culture behaviours, norms and values of organization.
    - Will have to change as move from paper to electronic
    - Staff will need to be more open to new technologies, integrate into internal processes and how they deal with clients
    - More client focused culture using technology to more proactively address customer needs
  - Organization business portfolios and organization structures and roles and responsibilities
    - Will be new activities involved and redefined roles and responsibilities.
    - Must reflect integration with external parties (service providers and partnering organizations).
  - Competency skills, aptitudes and knowledge that drives the business
    - Focus on managing as opposed to collecting information
    - Increase in need for integration skills and managing relationships among NSERC partners.
  - Process activities, tasks, workflows how business transactions work – operating and managing processes

The implementation of the various eBusiness solutions will mean significant change at NSERC. It will include culture, organization, competency, and process (activities, tasks, and workflows) changes. The project recognizes that change management is a critical area.

This area is high risk that the benefits anticipated will not be achieved unless an effective process to manage change is implemented. The impact of poor management of change processes is users are not ready for the new processes and do not endorse the new solution. It can be as extreme as users sabotaging the solution. Data integrity issues can arise. In addition the business processes are not efficient and effective and do not integrate well with the technical solution

NSERC does not have the internal resources with the required expertise and experience to identify and carry out required management of change activities.

High risk.

H It is recommended that the project secure a resource with extensive expertise and experience in the management of change to develop a change management strategy and plan.

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
- Significant impacts anticipated.			
- Knowledge and content management processes to			
ensure consistency and integrity of data required.			
- Technology – applications and development skills			
- Focus on integration between components in both			
external and internal environments.			
- Skills to develop and maintain all eServices delivered			
in-house.			
Concurrently there are a number of internal initiatives (as			
mention in section 1.2 eg. lightening the load, program			
consolidation, common CV, peer review processes) that will also			
result in change.			
- There is a requirement to coordinate/integrate the			
changes.			
- Most will involve communication with external			
stakeholders.			
Communication planning will be complex.			
- Change is facilitated by communication activities.			
Expectations Management – users			
- Limitations vs. delivery expectations.			
<ul> <li>Managing people's expectations is key.</li> </ul>			
- Expectations high after the Accenture working groups			
- What is technically feasible may not be cost feasible.			

# 3 Project Risk

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
3.1 Organization & Staffing			
During the period of the audit the project team was being more formalized.	The Project Director is well regarded in the organization. The role and responsibilities of the Project Director are clear. It is positive to have the Project Director coming	M/H	<b>Recommendations</b> : It is recommended that the DC CASD ensure:
<ul> <li>Project Director</li> <li>Experienced project manager with a good knowledge of the business.</li> </ul>	from the business side of the organization rather than the technology. It is a business project.		<ul> <li>ISD project manager is fulltime and reports direct to PD;</li> </ul>
<ul> <li>Overall responsibility and project management.</li> <li>Definition of overall strategies for project success.</li> <li>Responsible for planning, financial budgets, monitoring and</li> </ul>	It is positive to have project managers from the business areas available on a fulltime basis.		<ul> <li>Communications resource is assigned fulltime to project;</li> </ul>
reporting. Two full time project managers from user community (NSERC	The ISD project manager should be a fulltime project resource and should report directly to the Project Director.		<ul> <li>Project administration ro is defined and staffed;</li> <li>Key roles of configuratio</li> </ul>
program areas) recently assigned and report to PD.			management, change
<ul><li>Will manage specific projects.</li><li>Identify and analyse requirements.</li></ul>	A communications resource should be assigned fulltime to the project. The success of this project hinges on		management and quality assurance are defined an
<ul> <li>Consultations with external clients/users.</li> </ul>	management of change of which a significant element is		staffed.
- Both have significant experience in the program area of the organization.	communication. Communications is responsible for Web development and maintenance and there will be a		
	large component for this project. It is a good		
<ul> <li>ISD project manager – at time of audit was a part-time position but was expected to be full-time position soon.</li> </ul>	opportunity to ensure standards are met and to have the expertise in communications after the project is		
<ul><li>Reports to ISD Director who collaborates with PD</li><li>Responsible for identifying or changing ISD policies or</li></ul>	completed.		
implementing new ISD procedures.	Project administration roles are key success criteria for		
<ul> <li>Responsible for managing the other IT resources</li> <li>Ensures successful completion of technical development tasks and ensures its quality and adherence to standards.</li> </ul>	every project. At the current time there is insufficient support for the Project Director.		
- Two issues – part-time status (suppose to change) and	Three key roles are not evident – configuration		
<ul> <li>reporting relationship to ISD Director</li> <li>could be a conflict of priorities with other ISD activities</li> </ul>	management, change management, and quality assurance.		

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATION
- makes accountability difficult.			
	Risk is medium/high.		
IT resources – in-house resources have minimal experience with			
eBusiness solutions.			
- There are not a lot of these types of resources available in			
the market place.			
Communication Division			
- Develop communications plan for overall project or specific			
sub-projects			
- Ensures project adheres to corporate communication			
standards.			
- Responsible for current web site management.			
- No full-time resource assigned.			
- Ensure proper access to Web tools by project			
- Participate in definition of Web e-product standards.			
Project Administration role - currently minimal support			
- Projects require such a role to help the PD manage.			
- Activities should include maintenance of the project plan,			
records of decision, presentations, management information			
structure, meeting minutes, communications, project sign			
offs, status reports etc.			
- Not a junior role rather a resource who understands project			
administration.			
No roles yet			
- Configuration management – All project deliverables should			
be managed – paper and electronic.			
- Quality assurance			
- important because of the number of sub-projects			
- Ensures the quality of the deliverables – meet standards			
- change management			

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
3.2 Control Process			
<ul> <li>The project is being set up so that it is sub divided into smaller projects with defined deliverables. The concept is to manage smaller projects (manageable deliverables) and achieve quick wins as well as longer term successful deliverables.</li> <li>Planning – currently at the high level (Accenture work). <ul> <li>eServices have been identifies and priorities are being set</li> <li>Budgets and costing being established.</li> <li>Using Microsoft offices as tool to manage project.</li> <li>Will be detailed project plans for each sub-project and an overall plan with critical path.</li> </ul> </li> <li>Budgeting – financial control.</li> <li>At time of audit a budget was not yet finalized.</li> <li>Project lacks a project toolkit that includes: <ul> <li>Charter format – no project or sub project charters completed yet</li> <li>Management information reporting format</li> <li>Problem tracking and solution process</li> <li>Risk management/monitoring</li> <li>Quality assurance plan</li> </ul> </li> </ul>	It is positive that the project is being sub divided into smaller projects with defined deliverables. This technique has proven effective in project management. There is still significant work to be completed before a detailed project plan with a critical path. The project needs a "toolkit". The project will require a significant amount of integration and coordination and this can only be achieved if a framework of common project management techniques and tools are used. <b>Risk is high.</b>	Н	Recommendation: It is recommended that the PD acquire a "toolkit" to be used to manage the overall project and sub projects.

 Formal development process not evident.
 Higher probability of success if they use a formal development methodology. It will be very difficult to manage all the sub-projects and to maintain quality without a formal development proceSS.
 M/H
 Recommendation:

 - Yet to select application development package. eg. Powerbuilder
 M/H
 Recommendation:
 It is recommended that the Project Director ensure a development methodology is selected and followed.

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
4.1 Informatics Readiness			
<ul> <li>The ability of IT area to be ready to deal with changes coming about from the implementation of eBusiness system solutions. The IT organization needs application support (production control, maintenance, documentation), telecommunications support (network management), and technology support (contingency planning). This support is required for both the short and long range.</li> <li>Management of change process is inadequate.</li> <li>No configuration management or release management discipline.</li> <li>Availability of skilled technical resources in marketplace.</li> <li>Need eBusiness applications development skills.</li> <li>Need eBusiness operational skills for on-going maintenance and operations (production environment).</li> <li>Resources not readily available.</li> </ul>	Informatics readiness is an issue and the risk will increase as the project moves towards implementation. Risk can be reduced if the management of change process is addressed and IT business practices such as configuration and release management are implemented Medium risk with potential to increase quickly.	М	Recommendation. See recommendation for change management (section 2.3) It is recommended that the Director of ISD implement configuration and release management processes.
ACTIVITY 4.2 Infrastructure	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATION
The technical solutions implemented under the e-Business project will probably require changes to the current technical architecture. Newer and less widely-proven platforms have substantially higher risk than mature and widely used platforms. Risk is less in organizations where projects adhere to the organizations technical standards and methods (assuming they exist and are documented)	The assessment identifies the technical gaps as well as policy, methodology, process and procedure gaps. The assessment was conducted before the NSERC eBusiness vision was finalized. As a result the technology gaps are generic and may be incomplete. It will be necessary throughout the project to assess the IM/IT environment and	L	No recommendation required.

to identify gaps. A number of high-risk items have been

and technology environment.

ACTIVITY	CONCLUSION	RISK	SUGGESTIONS & RECOMMENDATIONS
As part of the eBusiness focus NSERC has recently had its	identified but as long as action is taken to address them the		
architecture framework assessed.	risk is low. It will be the responsibility of the ISD Project		
- The following were included:	Manager on the eBusiness team to work with ISD and ensure		
- Application architecture	the appropriate IM/IT environment is in place for the		
- Hardware and software	implementation of eBusiness solutions.		
- Network			
- Web services			
- Middleware	Low risk with potential to increase quickly.		
- Information management			
- Security			
- Development architecture and,			
- Operations architecture			
Used a structured approach for the assessment of NSERC's			
existing execution, development, and operations environment.			
Concept: developing a strong working knowledge of an			
eInfrastructure is important as the organization develops its			
eBusiness strategy.			
- Identifies preliminary gaps and grouped them by level of risk:			
high medium and low.			
<ul> <li>Gaps are the result of a comparison with an eInfrastructure diagnostic tool.</li> </ul>			
• The assessment identifies the technical gaps as well as policy, methodology, and procedure gaps.			