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AUDIT OF THE CANADA RESEARCH CHAIRS PROGRAM

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EXECUTIVE SUMMARY

Background

The Canada Research Chairs Program (CRC) program is a $300 million program created in 2000 to recruit and retain researchers in Canadian universities, and ensure Canada would be well positioned to face the challenges and opportunities arising in the new millennium. This tri-agency program is funded by the Social Sciences and Humanities Research Council (SSHRC), the Natural Sciences and Engineering Research Council, and the Canadian Institutes of Health Research. The program also partners with the Canada Foundation for Innovation (CFI), and collaborates with Industry Canada and Health Canada, to deliver on its mandate.

Why It Is Important

The CRC program is a high-profile program that provides approximately $300 million in grant funding per year. Due to its materiality and importance in recruiting and retaining researchers in Canada, the CRC program was identified in SSHRC's 2011-14 Risk-Based Audit Plan as one of the programs to be audited.

Audit Objective and Scope

The objective of the audit was to assess whether a management control framework and management practices were in place to ensure efficiency in the delivery of the program.

The scope of the audit covered the following strategic areas of the CRC program:

1. **Program Management:** Clear roles, responsibilities and accountabilities have been established to facilitate the efficient management of the program.

2. **Internal Controls:** A reasonable set of controls exists and is working as intended to ensure process efficiency.

3. **Risk Management:** A systematic monitoring and review process is evident to identify and mitigate emerging risks and to promote continuous improvement.

Key Audit Findings

The core activity of the CRC program—the peer review process—is a complex activity that involves numerous steps and points of assessment and relies on the work of volunteer peer reviewers. These volunteers are experts from academia, government and industry, and hail from across Canada and around the world. The audit found that operational processes were well defined and established for the peer review process, promoting efficient delivery of the program. Additionally, internal processes, such as financial verifications and ongoing monitoring, also contributed significantly to the efficient delivery of the CRC program.

The audit did note a number of areas where improvements were needed:

1. There was limited interaction between functional areas

    – Two functional areas are involved in the end-to-end delivery of the program: the Chairs Secretariat and SSHRC's Finance and Awards Administration Division (F&AA division). For managing the program's data, the Secretariat has a memorandum of understanding with the CFI, which, in turn, uses a contract with a private-sector

service provider (Internal Office Solutions Inc.) to maintain and store the CRC program's data. The audit noted that functional areas operated rather independently of one another, and that there was limited interaction between these areas. As a result, information that could enhance the program's risk management was found to be lacking, and issues that existed around the security of CRC program data had not been identified. Enhancing the interaction between the program's functional areas could provide greater assurance that essential information with business value can be used effectively to address issues that impact the program from a broader perspective.

2. Internal controls over data need to be strengthened

   – The audit found a number of areas where improvements to internal controls were required. In particular, the level of password control on the program's data was found to be inconsistent between user groups, which could result in unauthorized access. Furthermore, the audit found that the audit trail of the grants management system was limited, and that greater assurance was needed over the control and security of the CRC program's data. Internal controls could be enhanced by establishing clear authority over data and ensuring appropriate policies, practices and procedures are in place to safeguard this information.

3. Risk management was informal

   – The audit noted that risk management was being carried out with limited formality. While the audit found that the Chairs Secretariat was collecting various sources of risk information, the mining and consolidation of this information had yet to be fully realized. In addition, monitoring reports produced by the F&AA division, and which could assist in decision-making and risk management, were not readily provided to the Chairs Secretariat. In order to better risk-manage the program's operations, a risk management approach could be developed to periodically identify, assess and mitigate risks. The F&AA division could also provide management with reports in order to strengthen risk management within the CRC program.

Conclusion

The CRC program has existed for more than 12 years. Through the years, the refinement of its processes has contributed to the efficient management of the program. The audit noted many positive practices that form the foundation of this program. Nevertheless, there are a number of systemic issues that will require further attention. The audit of the CRC program acknowledged that issues around internal controls, such as password control variability and audit trail limitations, could be addressed through the development of the new grants management system. However, other issues, such as risk management and interaction between functional authorities, will need to be addressed independently as the CRC program continues on its path of continuous improvement.

1. BACKGROUND

The Canada Research Chairs Program (CRC program) was created in 2000 to recruit and retain researchers in Canadian universities, and ensure Canada would be well positioned to face the challenges and opportunities arising in the new millennium. This tri-agency program is funded by the Social Sciences and Humanities Research Council (SSHRC) and the Natural Sciences and Engineering Research Council (NSERC)—which are departmental agencies of the Government of Canada and report to Parliament through the minister of Industry—and by the Canadian Institutes of Health Research (CIHR), which reports to Parliament through the minister of Health. The program partners with the Canada Foundation for Innovation (CFI), and collaborates with Industry Canada and Health Canada, to deliver on its mandate.

The CRC program, administered by the Chairs Secretariat, is housed within SSHRC and is composed of 18 positions (of which four are currently vacant). It has an operating budget of approximately $1.4 million. The Chairs Secretariat is headed by an executive director who sits on the program's management committee, a body comprising vice-presidents from SSHRC, NSERC, CIHR and the CFI, as well as representatives from Industry Canada and Health Canada. The management committee has both an advisory and decision-making role. It reports to the steering committee, which is chaired by the president of SSHRC and comprises the presidents of SSHRC, NSERC, CIHR and the CFI, as well as the deputy ministers of Industry Canada and Health Canada. Both committees meet approximately four times per year and play a key role in overseeing the management of the program. The steering committee makes final decisions in the nomination-approval process.

Through the CRC program, the tri-agencies invest $300 million per year (20 per cent SSHRC, 45 per cent NSERC, and 35 per cent CIHR) across 72 universities, in the form of Tier 1 and Tier 2 Canada Research Chairs. Tier 1 awards are intended to support established researchers, are tenable for seven years, are renewable indefinitely, and are valued at $200,000 per year. Emerging researchers may be awarded Tier 2 chairs, which have a five-year term, are renewable once, and are valued at $100,000 per year. Approximately 1,800 of the 2,000 available chairs are currently filled. Of these, approximately 45 per cent are Tier 1 chairs and approximately 55 per cent are Tier 2 chairs.

2. AUDIT OBJECTIVE AND SCOPE

The objective of the audit of the CRC program was to assess whether a management control framework and management practices were in place to ensure efficiency in delivery of the program. An efficient process can be described as any process in which minimum inputs lead to the desired outputs. A process is usually considered efficient when it is clear, standardized, minimizes error, facilitates timeliness, and produces intended outputs.

The scope of the audit covered the following strategic areas of the CRC program:

1. Program Management: Clear roles, responsibilities and accountabilities have been established to facilitate the efficient management of the program.

2. Internal Controls: A reasonable set of controls has been established and is working as intended to ensure process efficiency.

3. Risk Management: A systematic monitoring and review process exists to identify and mitigate emerging risks and to promote continuous improvement.

The audit was conducted over a six-month period, between November 2011 and April 2012, using Corporate Internal Audit Division resources combined, during the survey phase, with the

services of a consultant with expertise in programs audits. A number of criteria were used to structure the audit and draw conclusions from the information gathered. These criteria were based on guidance provided by the Office of the Comptroller General of Canada for assessing core management controls in government (see Appendix I). The review focused on information available between January 2009 and December 2011.

3. AUDIT METHODOLOGY

The Corporate Internal Audit Division used the following methodology to conduct its work:

– file and document review of various sources of information, including committee terms of reference, plans, program guidelines, process descriptions, manuals, CRC program website, etc.;
– interviews with internal key stakeholders, including Chairs Secretariat staff (executive director, program officers, program administrative staff), committee members, and managers from different areas (i.e., Accounting Services; Financial Monitoring; Awards Administration; Procurement, Contracting and Materiel Management) within the Finance and Awards Administration Division (F&AA division); and
– surveys given to chairholders, research grant officers, and peer reviewers.

In the professional judgment of the Chief Audit Executive, sufficient and appropriate audit procedures have been conducted and evidence gathered to provide a high level of assurance on the findings contained in this report. The conclusions were based on a comparison of the situations as they existed at the time of the audit against the audit criteria.

This internal audit was conducted in accordance with the Treasury Board of Canada's *Policy on Internal Audit*, and The Institute of Internal Auditors' *International Standards for the Professional Practices of Internal Auditing*.

4. KEY AUDIT FINDINGS

4.1   Program Management

There are two functional areas involved in the end-to-end delivery of the CRC program: the Chairs Secretariat and SSHRC's F&AA division.

The Chairs Secretariat is led by an executive director, and includes program officers from SSHRC, NSERC and CIHR. The Secretariat is responsible for delivering the front end of the program (i.e., processing nominations, co-ordinating peer review, processing award decisions). Unlike other programs within SSHRC that use SSHRC's internal information technology (IT) support from the Common Administrative Services Directorate (CASD), the CRC program obtains its IT support using a private sector service provider, eVision. The information submitted by nominees and universities is stored and maintained off-site by another service provider, Internal Office Solutions Inc.

The F&AA division manages the post-award activities related to the award. These activities include administering the payment process, managing post-award queries, and monitoring funds through financial verifications and institutional monitoring reviews. Some of these post-award responsibilities are shared between the F&AA division and the Chairs Secretariat.

4.1.1 Operational processes are well defined and established to promote efficiency throughout peer review

The core activity of the CRC program—the peer review process—is a complex activity that involves numerous steps and points of assessment. At the centre of this process is the work of the peer reviewers. These volunteers are experts from academia, government and industry, and hail from across Canada and around the world.

The peer review materials, available on the CRC program website, are the key information resource that facilitates the efficient administration of the program. The materials include comprehensive documentation (including relevant forms and instructions) identifying procedures for nominating, selecting and renewing Canada Research Chairs. This documentation is referred to throughout the competition cycle by chairs, program assistants, program officers and peer reviewers alike. The CRC website was also recognized as a valuable repository of information for external stakeholders. It should be noted that the amount of information maintained on the CRC website also promotes clarity and transparency.

Efficiency of the peer review process has been enhanced by several processes developed within the Chairs Secretariat in recent years to ensure award cycles are completed in a timely manner. For instance, program officers and program assistants are guided by detailed procedure manuals and critical paths, which include activities and cut-off times in order to ensure that requirements at each step of the cycle are satisfied. The critical paths are closely monitored by the CRC program's senior program officer, and team meetings are held to address any difficulties or events that may delay the process. Information gathered through a survey of peer reviewers, chairholders and research grant officers supported this finding.

4.1.2 The limited interaction between the functional areas does not promote an end-to-end view of the program

The CRC program's current delivery model is shared by two functional areas within SSHRC (the Chairs Secretariat and the F&AA division) and a third party (Internal Office Solutions Inc.) that manages the program's database. The Chairs Secretariat completes the institution allocation calculation, accepts and processes nominations, manages the peer review process, then awards the grants. In order to facilitate the intake of nominations and the peer review process, the Secretariat has a memorandum of understanding (MOU) with the CFI, which, in turn, manages a contract with Internal Office Solutions Inc. to store, service and maintain the CRC program's data. Once grants are awarded, the F&AA division is responsible for managing and monitoring the funds sent to the institutions.

The audit noted that there was limited interaction (e.g., reporting on expectations, existence of common committees) between these three groups regarding the end-to-end management of the program (see Appendix II). Each area has its own, individual set of operating protocols and internal controls, rather than sharing an integrated operating framework. As a result, when risks arise in one area that could have implications for other areas, there is limited assurance that this information will be shared. For example, as discussed in 4.2 Internal Controls further in this report, results from the F&AA division's monitoring visits between 2009-10 and 2011-12 were not readily available to the Chairs Secretariat or to its management (CRC program management, steering committee and management committee). This information could provide an understanding of the level of controls within the institutions, and could help the Secretariat in formulating appropriate risk management approaches. Other issues described in 4.2 Internal Controls may also be a byproduct of the limited interaction between the functional authorities (e.g., control and security over data).

Recommendation 1: It is recommended that the program's operating framework be reviewed and adjusted to enhance interaction between the functional authorities, and to promote comprehensive, end-to-end program management. A revised, documented approach should clearly define accountabilities of functional authorities, committees and key stakeholders to ensure appropriate governance and management controls are in place, particularly in relation to data.

4.1.3 Roles, responsibilities and reporting structures would benefit from greater formality

The day-to-day operation of the CRC program is managed through the Chairs Secretariat and two key committees:

- the steering committee, which is responsible for the management of the peer review process, communications, program structure, policy development and budget management; and
- the management committee, which both has a decision-making role and advises the steering committee.

The audit found that, while the roles of the Chairs Secretariat and the steering committee were clear, the management committee's role required greater clarity. The audit noted that the management committee only has a high-level document entitled *Proposed Role*, and that this document had not been revised or revisited since May 2000. In the absence of clear and complete terms of reference, it is unclear how the management committee should specifically be engaged to support the program. The Chairs Secretariat informed the Corporate Internal Audit Division that, in response to this issue and to clarify roles and responsibilities, it was in the process of drafting a matrix. The matrix will identify at which level (Chairs Secretariat, steering committee or management committee) specific decisions would be made. While this document could promote greater clarity on roles and efficiency in the decision-making process, the audit noted that the matrix was in an early stage of development.

Furthermore, the audit found that, while briefing notes were shared between functional areas, the reporting structure (e.g., reporting lines, expectations, and mechanisms) for supporting the flow of information between the management committee, steering committee and Chairs Secretariat had not been formally defined. Rather, means of communicating information were found to often be informal and based largely on verbal briefings between the executive director and vice-presidents sitting on the management committee, and between vice-presidents and their respective presidents sitting on the steering committee. While this method of communication can be expedient, it is informal and provides limited assurance that information needed to support timely decision-making and oversight will be transmitted.

Recommendation 2: It is recommended that clear and complete terms of reference for the management committee be developed to promote greater role clarity and efficiency in the decision-making process. In addition, it is recommended that reporting requirements be established between the Chairs Secretariat, management committee and steering committee, to ensure information used to support the management of the program at various levels is shared.

4.2 Internal Controls

Internal controls can be defined as policies and practices designed to provide reasonable assurance regarding the achievement of objectives.[1] Internal controls facilitate efficiency by

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[1] Committee of Sponsoring Organizations of the Treadway Commission, 2011.

minimizing error and promoting consistency. Within business, internal controls are also viewed as mechanisms that safeguard assets (e.g., information, funds).

4.2.1 Accountability over the awards management data requires clarification to ensure the program's data is monitored and protected

The Chairs Information Management System (CIMS) was designed as a grants management system to manage and monitor the program throughout its lifecycle. CIMS captures nominations information (e.g., names, curriculum vitaes), peer review information, final award decisions, and award payment schedules. The CIMS database contains information on thousands of nominees, chairholders and institutions from the program's inception in 2000 up to the present day. In addition, the system also provides an interface with the Financial, Procurement and Asset Management system (FPAM). Although CIMS is the CRC program's central information management system, and is vital to the delivery of the program, the audit found that accountability for both the system and the data residing in its databases had not been formally assigned.

In the absence of clear accountability, there was also limited assurance provided to the Chairs Secretariat concerning the control and security of the CRC program's data. In 2002, the CRC program signed a MOU with the CFI to share data. This agreement stipulated that the CRC program and the CFI would "share personal information about identifiable individuals regarding applications/nominees participating in both programs of either or both organizations," as well as information related to the adjudication and administration of the award. The CFI was given the responsibility for managing the contract with Internal Office Solutions Inc. to host and maintain the CIMS database. Despite the critical nature of the data to the CRC program, the audit found that there are no provisions in the MOU for the CFI to provide assurance regarding the backing up, control over or security of the data to ensure it is safeguarded against loss or corruption. Similarly, no threat/risk assessments have been conducted to understand the vulnerability of the data, and there is no business continuity/recovery plan in place in the event that the data becomes irretrievable or compromised.

Recommendation 3: It is recommended that clear authority over data assets be established and appropriate controls and a recovery plan are put in place to safeguard the CRC's data.

4.2.2 Password management control is variable between user groups

Password systems are the simplest form of authentication. In order to protect password systems, the following good practices should be in place:

- Original generic passwords should not be used permanently, and users should be prompted to select a new, personal password upon their first time logging into / accessing the system.
- Password aging should be strictly enforced, with passwords requiring periodic refreshing to ensure they do not remain in use for too long.
- Password strength should be enforced intelligently, and users should be encouraged to use uppercase and lowercase letters, numbers and symbols in their passwords (rather than dictionary words).

Outside of Chairs Secretariat staff and selected employees within CASD (i.e., Finance), there are three other main user groups for CIMS: nominees, peer reviewers and administrators within universities (i.e., research grant officers).

The audit found that, between these user groups, the level of control surrounding passwords was variable, suggesting greater control was exercised for some users more than others. For instance, while requirements for password strength were in place for certain user group passwords, there was no strength requirement for other user groups and these variations in password control could result in unauthorized access to CIMS. As part of the Chairs Secretariat's path of continuous improvement, the CRC program has recently agreed to be one of the first programs to participate in a proof of concept for a grants management system. This initiative, headed by SSHRC's Information and Innovation Solutions Division, proposes several solutions to the above-mentioned weakness. It is important to note that it is beyond the scope of this audit to examine the effectiveness of the solutions being proposed by the Information and Innovation Solutions Division.

4.2.3   CIMS capacity to track modifications to its data is limited

Information technology (IT) audit trails are important in providing a chronological log of access to a system; a record of additions, changes and deletions to that system; and a record of the name of each user who accessed the system, the time of the access, and what action was performed. These logs are meant to be inalterable, thus ensuring the presence of a reliable and logical audit trail—which is an indicator of good corporate internal controls.

The CIMS audit trail is quite rudimentary, considering that the system manages over $300 million in funding per year. The current audit trail in CIMS retains the time stamp and user ID of the last person to make changes in the system, but does not record the specific field(s) or data that were altered. Additionally, the audit trail does not retain a historical record of any previous CIMS modifications or user access. This suggests that it would be difficult to determine the exact nature of any modifications made to the data, and by whom they were made.

Recommendation 4: It is recommended that reasonable assurance be acquired from the Information and Innovation Solutions Division that the proposed solutions offered by the new CRM system will adequately address password control variability and the limited audit trail issues currently in CIMS.

4.2.4   The technical process for managing the chairs allocations is manual and is largely reliant upon one individual

Unlike other programs administered within the agencies, the CRC program incorporates a unique process by which universities are allocated chairs prior to nominations being submitted. On a biannual basis, the Chairs Secretariat gathers data from each agency on the amount of funding they have awarded to each institution over the past two years. Using this data, the Secretariat performs a calculation that determines the number of Canada Research Chairs each institution will be allotted. In simple terms, the institution with the highest amount of cumulative funding from the agencies will be allocated the highest number of chairs. The number of chairs allocated tells the institution how many Tier 1 and Tier 2 candidates they can nominate in order to fill their allocation.

Universities are allowed to convert their allocations in a number of ways intended to promote flexibility. For example, an institution may request to a convert a Tier 1 allocation into two Tier 2s; this is referred to as a "flex move." Currently, these key functions cannot be performed in CIMS. Rather, the calculation/allocation of awards and the tracking of flex moves constitute separate processes that are completed manually in Excel by the data management coordinator. While these spreadsheets are critical to the management of the program, the knowledge of how to manage and manipulate the information in order to support this part of the process is held by a single staff member within the Chairs Secretariat, and procedures for

using the spreadsheets have yet to be documented. Moreover, because this process is manual, it is exposed to the risk of human error.

Furthermore, the audit found that the CRC program's allocation and utilization spreadsheets stored in SSHRC's Electronic Document and Record Management System had not been sufficiently secured to prevent unauthorized access. These sensitive files were found to be accessible to a wide range of CRC program employees who have permissions to both view and modify the files. The limited security around these files is likely due to the fact that the establishment of "view" and "modify" rights has not been based on a needs analysis. There was no evidence to suggest that the Chairs Secretariat has based permissions to access and edit files on position-specific requirements. The audit also found that other sensitive files—namely those associated with transferring financial information from CIMS to FPAM—required greater security. The range in accessibility for important files suggests that sensitive information key to the successful delivery of the program could potentially be modified, either by accident or by malicious intent.

Recommendation 5: It is recommended that the Chairs Secretariat ensure the allocation/utilization spreadsheets and other sensitive files are adequately protected to prevent unauthorized access.

Recommendation 6: It is recommended that the process for managing the Chairs allocation and 'flex move' tracking be documented and shared with a broader range of Chairs Secretariat staff.

4.2.5   *Payment information in the Financial, Procurement and Asset Management system (FPAM) system is verified to ensure accuracy of payments*

CIMS captures all award information, including the amount and duration of an award. In order for award payments to be issued, information must be transferred from CIMS into FPAM, since the systems work independently of one another. This transfer of financial data from CIMS to FPAM is done through a function in CIMS. The F&AA team initiates this transfer on a monthly basis. Before the transfer is completed, Business Object reports are printed and an institution-based verification is performed to ensure that the information in CIMS matches the information that has been transferred into FPAM, and that payments have the appropriate "Section 34" approval. In addition, the F&AA division also performs ad hoc and year-end reconciliations through which they review how much funding has been paid to institutions, how much has been received, and how much is left on behalf of each agency, by institution. In addition, institutions can request a copy of their payment schedule, and, if there are any discrepancies between their payment schedule and the amount transferred from the program in a given month, they may notify the Chairs Secretariat.

It is important to note that, while these verifications ensure the accuracy of payment information, they are dependent on the accuracy of the CIMS data itself. If these data are not appropriately controlled (i.e., through access restrictions, data being secured and backed up to prevent corruption or loss), the accuracy of the payments could be affected.

4.2.6   *The Canada Research Chairs Program employs continuous monitoring to track funds and ensure ongoing eligibility*

As stated in the MOU between the agencies and the institutions, each institution agrees to monitor the ongoing eligibility of chairholders and advise the Chairs Secretariat of any changes in eligibility status. As such, institutions become active partners in the assessment of the chairholders' eligibility and the payment of award funds to researchers.

The F&AA division has a continuous financial monitoring program that requires universities to complete and report back on eligible expenses via the Form 300 Statement of Account. This helps determine, on a yearly basis, how much funding has been spent and how much is remaining in the award. Business Object reports in CIMS can be run at any given time to monitor the use of these funds. Furthermore, the Chairs Secretariat verifies ongoing eligibility once a year to ensure the Chair is still active. This is one mechanism that allows the Secretariat to identify early terminations (e.g., maternity leave, death, other leave) and, if necessary, to begin the process of recovering funds. In instances in which the award has been terminated, the F&AA division is notified by the Chairs Secretariat. The F&AA division then requests and ensures receipt from the institution of the *Form 303—Outstanding Commitments*, detailing what has been spent for the period of time in which the Chair was active, and the amount remaining.

Cumulatively, these practices ensure that funds are only being used for active chairs, and that, in the event a Chair is no longer eligible for funding, funds can be recovered.

4.2.7   Enhancements underway for the 5-year financial monitoring review plan

As previously mentioned, administration of the CRC program falls under SSHRC. SSHRC's F&AA division conducts site visits as part of the ongoing financial monitoring at institutions that have signed a MOU with SSHRC and that receive SSHRC funds, including CRC program funds. The scope of their work includes a review of the institutions' internal control framework as well as a review of transactional expenditures in order to ensure compliance with *the Tri-Agency Financial Administration Guide* and the *Chairs Financial Administration Guide* regarding eligible expenses. In 2006, the F&AA division developed a five-year plan that identified approximately 10 monitoring visits for each year of the plan. The plan was mainly based on two criteria: 1) the level of combined funding from NSERC and SSHRC; and 2) the ratings (fully satisfactory, satisfactory or unsatisfactory) the institutions received during prior monitoring visits.

The monitoring reviews are conducted using comprehensive tools, and assess whether the institutions' financial controls are effective and respect the terms and conditions specified in the MOU. The criteria for selecting institutions for the current monitoring review schedule are heavily based on the amount of annual funding that institutions received in the 2006-07 fiscal period. If this approach is maintained, only approximately 60 per cent of institutions will be monitored, and a high percentage of smaller institutions may never be visited or reviewed. In recognition of this weakness, the F&AA division has already partnered in a tri-agency, three-phase project called Monitoring Review Modernization. The project is underway and should be fully implemented by June 2013. The main goal of the project is to provide a "higher level of assurance" that administration controls for grant funds are in place and effective.

4.3   Risk Management

Risk management is the identification, assessment, prioritization and mitigation of risks. All organizations face risks at both the strategic and operational level. A formal risk management process must be documented and systematically monitored in order to continuously address emerging issues.

4.3.1   Risk management of the Canada Research Chairs program is informal

There is currently no formal risk management process in place to identify, mitigate and monitor emerging risks to the program. A review of job profiles within the Chairs Secretariat, as well as the terms of reference for the steering committee and the management committee

confirms that responsibility and accountability for risk management have yet to be considered for the program. Rather, the current approach to risk management within the CRC program is informal and based largely on the sharing of information between colleagues, with follow-up on issues as they arise. In the absence of a formal risk management process, the program has faced several risks over the years that have not been formally identified, assessed or mitigated. Some of these have been identified in this audit (data accountability, password controls, manual processes).

Despite the lack of formality in risk management and related information gathering, the CRC program receives valuable risk information—particularly in relation to how the program is administered—from a variety of sources. For example, the Chairs Secretariat collects annual reports from chairs and universities on the management of awards, conducts monitoring visits at selected institutions, and receives telephone calls from chairholders and research grant officers. The resulting information could potentially be used to identify risks, which is the first step in establishing a broader risk management approach (see the description of risk management under 4.3 above). Maximizing the use of this information also has implications for making risk-based decisions at both the operational (e.g., monitoring visits) and strategic (e.g., governance) levels. However, the potential for mining this information and integrating it in order to begin developing a risk management process has not yet been fully reached.

Recommendation 7: It is recommended that a risk management approach be developed for the program that identifies, assesses and mitigates risks on a periodic basis, taking into consideration the following areas: strategy, operations, compliance with legislative requirements, and safeguarding of the program's assets (i.e., data and program funds).

4.3.2 Information gathered during the monitoring visits conducted by the Finance and Awards Administration Division could be used more effectively

The monitoring team produces a comprehensive, institution-level report at the end of each monitoring visit. These reports outline key control weaknesses and identify areas of non-compliance and ineligible expenses. However, the audit noted that findings are not presented to SSHRC's senior management or to the Chairs Secretariat. In addition, the F&AA division does not conduct a formal, holistic analysis of these results that could identify common trends or risks. Between 2009-10 and 2011-12 approximately 50 per cent of institutions received an "unsatisfactory" rating, suggesting their internal control frameworks required improvements. Given this finding, a holistic analysis could be important in understanding the reasons behind the unsatisfactory ratings, and enhancing management's ability to manage risks and make well-informed decisions regarding the program.

Recommendation 8: It is recommended that the F&AA produce holistic reports which highlight risks and trends, and are shared with management within the Chairs Secretariat, as well as SSHRC senior management.

5. CONCLUSION

The CRC program has existed for more than 12 years, and a number of its processes have contributed to the efficient management of the program. The core activity of this program—the peer review process—is a complex activity that involves numerous steps and points of assessment, and a number of stakeholders (i.e., college of peer reviewers, research grant officers, peer review committee members). Despite the complexities of this activity, the audit noted that the program's peer review process was well documented and communicated, which has helped ensure the timeliness of assessments and award administration. Furthermore, once grants are awarded, a continuous financial monitoring program was found to be in place to track spending and the ongoing eligibility of chairs, and to enhance appropriate stewardship over public funds.

The audit team noted many positive findings in areas that form the foundation of the CRC program; however, there are several systemic issues that need to be addressed. Some of these issues are being considered as part of the development of the new grants management system being proposed for NSERC and SSHRC. In particular, the system plans to address those issues related to variations in password control and to the limited audit trail within the current system. Other issues will need to be addressed independent of the new grants management system. As it proceeds on its path of continuous improvement, the CRC program could strengthen its existing program delivery model by better integrating its functional areas, developing governance around the program's data in order to ensure this critical asset is properly monitored and safeguarded, and establishing a process to identify and mitigate emerging risks to the program.

Audit Team

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6. MANAGEMENT RESPONSE

Canada Research Chairs Program Audit Response and Action Plan, as Approved by the Steering Committee on October 30, 2012

	Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
1	**4.1 Program Management** 4.1.2 *The limited interaction between the functional areas does not promote an end-to-end view of the program*	It is recommended that the program's operating framework be reviewed and adjusted to enhance interaction between the functional authorities, and to promote comprehensive, end-to-end program management. A revised, documented approach should clearly define accountabilities of functional authorities, committees and key stakeholders to ensure appropriate governance and management controls are in place, particularly in relation to data.	Accepted. The development of the Action Plan is taking in consideration that this is a systemic issue identified in audits for other programs. The CRC Program and the relevant functional areas have agreed to undertake a systematic review of the entire program cycle in order to assign clear roles and responsibilities to each area. The review will be based on a model used to develop the new IT platform (8As). The resulting responsibility framework, once completed, will be tested for one year. A revision after the one year testing period is planned to make final adjustments to the framework.	Chairs Secretariat / CASD-Finance Division	May 2013

	Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
2	**4.1 Program Management** **4.1.3 *Roles, responsibilities and reporting structures would benefit from greater formality***	It is recommended that clear and complete terms of reference for the management committee be developed to promote greater role clarity and efficiency in the decision-making process. In addition, it is recommended that reporting requirements be established between the Chairs Secretariat, management committee and steering committee, to ensure information used to support the management of the program at various levels is shared.	Accepted. This recommendation is being addressed in the context of the review of governance of tri-agency programs. Harmonized Terms of Reference are being developed for the reporting structures of the 3 tri-agency Secretariats, including the Chairs Secretariat, which is responsible for the CRC Program.	Chairs Secretariat	January 2013

	Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
3	**4.2 Internal Controls** *4.2.1 Accountability over the awards management data requires clarification to ensure the program's data is monitored and protected*	It is recommended that clear authority over data assets be established and appropriate controls and a recovery plan are put in place to safeguard the CRC program's data.	Accepted. The development of the Action Plan takes into account the recent response to the Internal audit of IT Security. A new IT security policy and corresponding directives were approved and communicated to all employees in July 2012. The IT security framework has been thoroughly reviewed to align with all GoC standards that are meant to ensure the security of information and the security of information technology assets. While, at the time of writing this action plan, the CRC is only partially covered by this framework as its IT provider is hosted externally, the program is currently being transitioned to the SSHRC IT platform, where all data assets will be subject to the new policy and directives. According to the framework and its intent, the Program will be responsible for determining what data is collected and where it is stored, but the CIO will have full stewardship over data protection.	CASD-IIS/Chairs Secretariat	April 2013

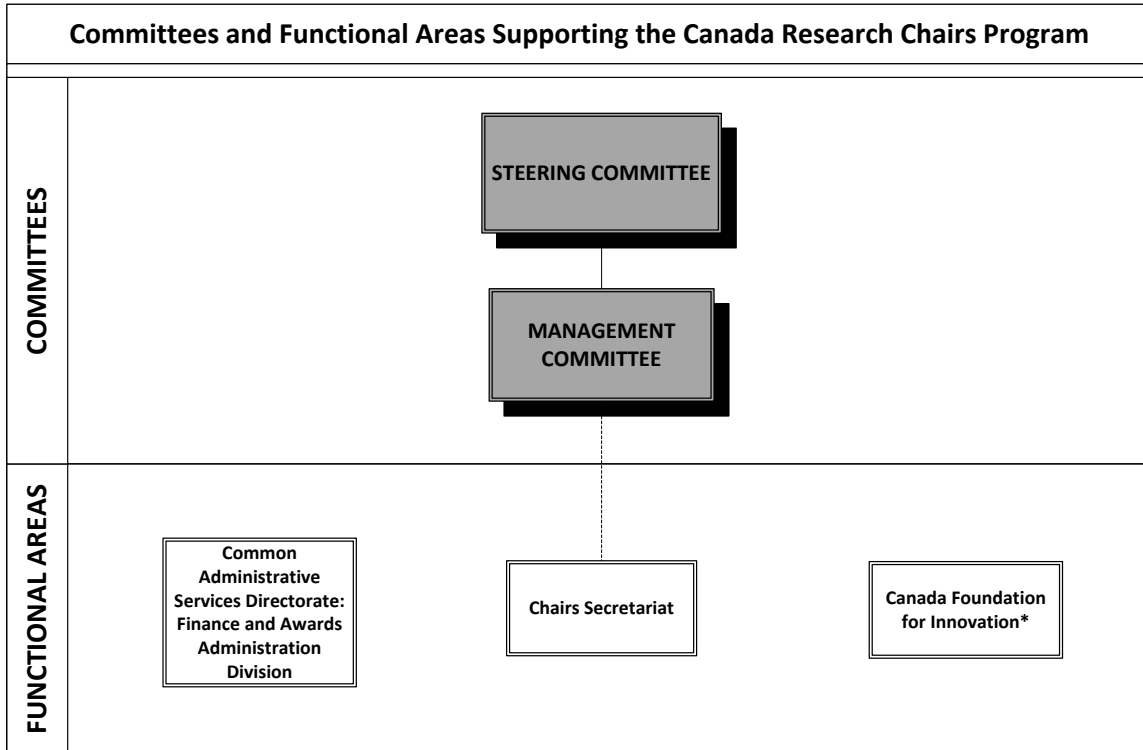|	Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
4	**4.2 Internal Controls** *4.2.2 Password management control is variable between user groups* *and* *4.2.3 CIMS capacity to track modifications to its data is limited*	It is recommended that reasonable assurance be acquired from the Information and Innovation Solutions Division that the proposed solutions offered by the new CRM system will adequately address password control variability and the limited audit trail issues currently in CIMS.	Accepted. Systematic testing and validation of the thin line over Winter 2013 should provide the required assurance; otherwise appropriate alternate solutions will be explored.	Chairs Secretariat / CASD-IIS	January 2013
5	**4.2 Internal Controls** *4.2.4 The technical process for managing the chairs allocations is manual and is largely reliant upon one individual*	It is recommended that the Chairs Secretariat ensure the allocation/utilization spreadsheets and other sensitive files are adequately protected to prevent unauthorized access.	Accepted. Access and permission for sensitive CRC documents and files have been reviewed. The appropriate level of permissions now applies to the "Allocation and Utilization" folder in Electronic Document and Records Management System (EDRMS). As well, physical copies of the allocation results and the utilization spreadsheets are kept in each institution's corporate folder at the Chairs Secretariat.	Chairs Secretariat	August 2012

		Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
6	**4.2 Internal Controls** *4.2.4 The technical process for managing the chairs allocations is manual and is largely reliant upon one individual*	It is recommended that the process for managing the Chairs allocation and 'flex move' tracking be documented and shared with a broader range of Chairs Secretariat staff.	Accepted. The process for managing the Chairs allocation and utilization ('flex move') tracking is being documented in a procedure manual for the CRC Data Management Coordinator. As sections of the manual are completed, they will be shared with other CRC staff. Staff in key positions will be further trained to back-up the data management coordinator and ensure that the allocation process and utilization tracking can be managed in his/her absence.	Chairs Secretariat	December 2012
7	**4.3 Risk Management** *4.3.1 Risk management of the Canada Research Chairs program is informal*	It is recommended that a risk management approach be developed for the program that identifies, assesses and mitigates risks on a periodic basis, taking into consideration the following areas: strategy, operations, compliance with legislative requirements, and safeguarding of the program's assets (i.e., data and program funds).	Accepted. The implementation of a risk assessment process for the CRC Program will be undertaken during Fall 2012. This process will include the identification and implementation of mitigation measures. The approach will include 5 main elements: 1) Governance, 2) Risk identification, assessment and remediation, 3) Information and Documentation, 4) Reporting, and 5) Monitoring.	Chairs Secretariat	November 2012

	Audit Recommendation		Management Response		
	Areas of Improvement	**Recommendation**	**Response**	**Responsibility**	**Timelines**
8	**4.3 Risk Management** *4.3.2 Information gathered during the monitoring visits conducted by the Finance and Awards Administration Division could be used more effectively*	It is recommended that the F&AA produce holistic reports which highlight risks and trends, and are shared with management within the Chairs Secretariat, as well as SSHRC senior management.	Accepted. This recommendation is addressed through the implementation of SSHRC's new governance model, which provides a venue and mechanisms for this type of exchange.	CASD-Finance Division/ Chairs Secretariat	September 2012

APPENDIX I: AUDIT AREAS, CRITERIA AND SOURCES

Audit Areas	Audit Criteria	Sources
Program Management	The program's management framework clearly delineates roles, responsibilities (including accountability) and reporting relationships to facilitate decision-making and oversight.	*Audit Criteria Related to the Management Accountability Framework: A Tool for Internal Auditors, Internal Audit Sector, Office of the Comptroller General, 2011*
Internal Control	The program has implemented and monitored a set of internal controls for its award management process which promotes efficiency.	*Audit Criteria Related to the Management Accountability Framework: A Tool for Internal Auditors, Internal Audit Sector, Office of the Comptroller General, 2011*
Risk Management	The program systematically monitors and reviews its processes and activities in order to identify and mitigate emerging risks.	*Audit Criteria Related to the Management Accountability Framework: A Tool for Internal Auditors, Internal Audit Sector, Office of the Comptroller General, 2011*

APPENDIX II: COMMITTEES AND FUNCTIONAL AREAS SUPPORTING THE CANADA RESEARCH CHAIRS PROGRAM

Committees and Functional Areas Supporting the Canada Research Chairs Program

COMMITTEES

STEERING COMMITTEE

MANAGEMENT COMMITTEE

FUNCTIONAL AREAS

Common Administrative Services Directorate: Finance and Awards Administration Division

Chairs Secretariat

Canada Foundation for Innovation*

* The Canada Foundation for Innovation is responsible for the program's database administration.

LEGEND:

COMMITTEE

FUNCTIONAL AREA

INDIRECT REPORT

DIRECT REPORT