

Enterprise and Advanced Education— University of Calgary Research Management Systems Follow Up

SUMMARY

In 2004 and 2005, we made seven recommendations to the University of Calgary to improve its research management systems.¹ In 2010, we reported on the university's progress in implementing the recommendations.² We repeated four of them.

The university has implemented the four recommendations repeated in 2010.

What we examined

We used the following criteria to assess the university's progress in implementing the recommendations. The university should:

- plan for, build and maintain research capacity, using business plans that identify the human resources needed to carry out research
- have clearly defined roles, responsibilities and accountabilities for approving, managing and monitoring research
- ensure research policies are current, clear, comprehensive and supported with processes to monitor, assess and enforce compliance
- use processes for researchers and teams to manage projects cost-effectively, control project expenses against budgets and incur expenditures only for the purposes intended

What we found

The University of Calgary improved its overall research management control environment by:

- developing workforce plans related to research and using models to determine and budget for indirect costs of research
- defining consistent roles and responsibilities for research management, support staff and administration
- ensuring research policies are current, appropriate and regularly monitored for compliance
- applying project management tools, monitoring project expenditures and consistently reporting processes on all research projects

Why this is important to Albertans

Research is an important function of the University of Calgary. Albertans expect publicly funded institutions to achieve value for the money they receive. The many organizations that contribute to university research also want assurance that the university has sound and sustainable systems to manage the funds they entrust to it.

¹ *Report of the Auditor General of Alberta—2003-2004*, pages 254–257; *Report of the Auditor General of Alberta—2004-2005*, pages 90–94.

² *Report of the Auditor General of Alberta—October 2010*, pages 43–55.

AUDIT OBJECTIVE AND SCOPE

Our audit objective was to determine if the university had implemented the four recommendations we repeated in 2010. To perform our audit, we:

- interviewed management and staff to learn what action they took in response to our recommendations
- tested the university's systems, processes and policies for administering research
- examined samples of research projects, including high-risk institutional projects
- reviewed strategic and accountability documents
- reviewed internal audit and external agency audit reports

We conducted our field work from June 2012 to February 2013. We substantially completed our audit on May 16, 2013. Our audit was conducted in accordance with the *Auditor General Act* and the standards for assurance engagements set by the Canadian Institute of Chartered Accountants.

BACKGROUND

The University of Calgary is a research-intensive institution with a goal to become one of Canada's top five research universities by 2016. It is a key contributor in developing the province's research capacity. For the fiscal year ended March 31, 2012, the university's research revenues of \$277 million accounted for 24 per cent of the university's total revenue.³

FINDINGS AND RECOMMENDATIONS

Planning for research capacity—implemented

Background

In 2010, we repeated our 2004 recommendation that the University of Calgary improve its human resource plans and develop a system to quantify and budget for the indirect costs of research.⁴

Our audit findings

Human resource plans

We previously found that the university had not completed a strategic workforce plan. In our current audit, we found that university faculties prepared multi-year staffing plans. Their plans included a current workforce profile, trends in future workforce demands, a workforce gap analysis and strategies for attracting, retaining and developing talent.

We tested a sample of these plans and confirmed that the office of the provost used the information from the faculties to develop a workforce plan for the whole university, from 2013 to 2016. The plan identified the staff needed to meet the university's goal to increase its research capacity.⁵ Based on the workforce plan, the university announced new workforce strategies in October 2012. These strategies included hiring 50 new assistant professors and 60 post-doctoral fellows in 2013.

³ 2011–12, University of Calgary Annual Report, page 32.

⁴ *Report of the Auditor General of Alberta—October 2010*, no. 4, page 46; *Report of the Auditor General of Alberta—October 2004*, no. 26, page 255.

⁵ 2011, University of Calgary Vision and Strategy: Eyes High.

Quantifying indirect costs of research

We previously found the university did not have systems to assess, quantify, budget or fund the indirect costs of research. In our current audit, we found the university developed a model to identify indirect costs of research. The model uses data from the university's five research-intensive faculties: medicine, science, engineering, veterinary medicine and arts. To design the model, management reviewed costing models at comparable post-secondary institutions and consulted its departments to review the cost allocations and their model's assumptions. The model is currently used to budget and forecast costs. Management's goal is to use it to more precisely recognize the true cost of research and compare costs to research revenue.

Research roles and responsibilities—implemented**Background**

In 2010, we repeated our 2005 report recommendation that the University of Calgary define research management roles and responsibilities.⁶

Our audit findings*Formulation and monitoring compliance with research policy*

We previously found that not all research policies identified who should administer, monitor and ensure compliance with the policy. In our current audit, we verified that two offices, the university's research services office and research accounting unit, examine compliance with policies as part of their responsibility for monitoring projects and their respective budgets. The university named an implementation authority to act as the policy owner for each policy. This person is responsible for ensuring that university staff comply with the policy. We sampled 12 research policies and found that all had defined roles and responsibilities.

Approving, managing and monitoring research programs

We previously found that roles and responsibilities for research varied from project to project and among faculties. In our current audit, we found that the university had defined roles and responsibilities for approving, managing and monitoring research programs.

The university defines what signatures mean at each level—principal investigator, department head, dean and vice president of research—and defines their responsibilities for research projects.⁷ This includes ensuring that:

- the project is carried out in compliance with all legal, ethical and accountability standards
- the project is feasible and fits within department or faculty plans
- peer reviews are completed when required
- space, equipment and other facility requirements are provided for

The vice president of research certifies that proposals receive adequate internal review and approval.

Providing support to researchers

The university requires all support staff involved in a research project to sign a form that identifies their role. This ensures that faculties clearly identify and acknowledge the roles and responsibilities for support staff involved with research projects.

⁶ *Report of the Auditor General of Alberta—October 2010*, no. 5, page 48; *Report of the Auditor General of Alberta—2004–2005*, no. 18, page 90.

⁷ 2010, University of Calgary, What Grant Application Signatures Mean.

Administering research funds

We previously found that the university had not defined management oversight responsibilities of principal investigators, department heads, deans or assistant deans of research for the administration of research funds. In our current audit, we confirmed that the university's guideline for signatures adequately defines the managerial staff who oversee the administration of research funds.

Principal investigators' signatures indicate that they are responsible for the administration and use of project funds. A department head's signature indicates that any requirement for resources will be administered in a timely fashion. Some faculties, such as medicine, have prepared supplemental guidelines to define roles and responsibilities for their assistant dean of research.

Research policies—implemented**Background**

In our 2010 report, we repeated our 2005 recommendation that the University of Calgary ensure all research policies are current and comprehensive.⁸ Specifically, the policies should identify who is responsible for monitoring compliance.

Our audit findings*Ensure research policies are current and appropriate*

We previously found that some research policies were not current. In our current audit, we found that the university has a new policy that outlines processes and timelines for reviewing all policies. The university's policy coordinator uses a central database to track policies and ensure that updates occur in a timely fashion. This new system was implemented recently. Management continues to work through a backlog of outdated policies. At the time of our audit, some policies were still not updated. However, the university's new processes are designed effectively and it is on track to complete the current round of updates in a timely fashion.

Monitor, assess and enforce policy compliance

We previously found no mechanism to ensure compliance with the university's policies for ethics certification, ethics and intellectual property. In our current audit, we found that the university strengthened its policy for compliance checks at the start of projects. The implementation authority or process owner for each individual policy is responsible for monitoring, assessing and enforcing employees' compliance with the policy.

We tested a sample of projects and found that the compliance and eligibility group confirmed compliance with the university's key research policies. The university implemented an additional control in the form of signatures on an annual financial compliance and eligibility certificate to get researchers to confirm their compliance with key university policies.

Project management—implemented**Background**

In our 2010 report, we repeated our 2005 recommendation that the University of Calgary and its faculties use project management tools for large, complex projects to ensure research is cost effective.⁹

Specifically, management needed to:

- assess the need for a central repository for all financial and non-financial project-related information

⁸ *Report of the Auditor General of Alberta—October 2010*, no. 6, page 50; *Report of the Auditor General of Alberta—October 2005*, page 91.

⁹ *Report of the Auditor General of Alberta—October 2011*, page 52; *Report of the Auditor General of Alberta—2004–2005*, page 93.

- develop roles and responsibilities for monitoring project performance
- develop tools to help principal investigators and researchers actively manage large, complex projects
- improve the process to control project expenditures
- implement a consistent process for reporting on all research projects

Our audit findings

Central repository

The university identified the institutional need for a central repository for information on research projects and completed a business case. However, at the time of our audit, this repository had not been funded. We anticipate the university will maintain its focus on building centralized systems to streamline its research business practices.

Roles and responsibilities for monitoring and control of project expenditures

The research accounting group has overall responsibility for monitoring project finances. The compliance and eligibility group monitors transactions for compliance with requirements set by project sponsors and monitors progress of projects against budgets. Financial compliance is managed through over-expenditure reports, other online system controls and actions of management to monitor overspent projects. Our process testing confirmed the university has designed a system to monitor project performance and control expenditures over the lifecycles of research projects.

Project management tools for researchers to manage their projects

For higher risk, more complex and higher dollar projects, the university developed a range of project management tools, including:

- teams to identify strategic proposal opportunities
- project kick-off and finalization meetings
- progress reports
- completion checklists
- dedicated project analysts and project managers

For lower risk projects, the university's financial system is the primary financial monitoring tool for researchers and principal investigators. Principal investigators also manage non-financial risks by closely monitoring deliverables noted in sponsor agreements.

Processes for reporting on all research projects

Projects sponsors specify the reporting requirements for research projects. The university prepares consistent reports for large and complex projects at a central business unit. The research accounting group reviews the reports to ensure they adequately report what the sponsor requires and meet the university's quality standards for reporting.

For smaller and lower risk projects, reporting is handled through a standardized report. The principal investigator signs off the form to confirm compliance with university policies and contract requirements. We sampled both types of projects and found the processes were effective in reporting non-financial requirements of sponsors.

The university also monitors its own reporting requirements at the institutional level using its performance measurement systems to report on performance measures such as the number of publications and citations.

