



Funding the Institutional Costs of Research:
An International Perspective

May 2009

Developments since May 2009

An addendum to *Funding the Institutional Costs of Research: An International Perspective*

Universities incur significant costs in support of the research endeavour. While research grants, primarily through the three federal granting agencies, cover costs directly associated with specific research projects, they do not cover costs that can not be directly attributed to one project.

The main categories of institutional costs include:

- operating, maintaining and renovating research facilities such as laboratories, libraries and computer networks;
- managing the research process from preparing proposals to accountability and reporting;
- ensuring regulation and safety compliance including human ethics issues, animal care, biohazards and environmental assessment; and
- managing intellectual property and promoting commercialization and knowledge mobilization.

Studies carried out by AUCC and other organizations have demonstrated that on average, for research funds attracted from external sponsors, universities incur institutional costs of at least an additional 40 percent.

The 2003 federal budget announced a permanent Indirect Costs Program that helps meet the institutional costs associated with federally-sponsored research. The Program's current budget is \$325 million; this equates to an overall reimbursement rate of 23.3 percent.

Universities also receive funding through the Canada Foundation for Innovation's Infrastructure Operating Fund. Assistance is provided to help meet the operating and maintenance costs of infrastructure funded by the CFI. Support is provided at a rate of 30 percent of the CFI's contribution towards the capital cost of a project. Given that CFI contributes 40 percent of capital costs, the IOF support amounts to 12 percent of project costs. IOF support is paid over five years. In 2007-08 IOF funding amounted to \$48.5 million.

In the spring of 2009 AUCC prepared a discussion paper comparing the treatment of institutional costs in Canada with a number of comparable jurisdictions – the United States, the United Kingdom, the European Union and Australia. The paper only considered initiatives that were analogous to the Indirect Costs Program. In the interest of clarity, other programs that meet additional institutional costs (such as the UK's Higher Education Innovation Fund and research capital block grants, or Australia's Commercialisation Training Scheme) were not considered.

We found that, where programs and policies are in place to meet institutional costs, universities are reimbursed at a much higher rate than in Canada – normally between 40 and 60 percent. The discrepancy is probably even higher than it seems – in most cases and unlike in Canada, direct research grants cover faculty salaries; thus, the institutional costs are calculated on a wider base.

The one exception at the time was Australia, but the paper describes measures in the 2009 Australian budget that are intended to lead to a much more generous reimbursement of institutional costs.

Since the paper was prepared, there have been several significant developments.

- The European Union was going to reduce its flat-rate reimbursement of institutional costs from 60 percent to 40 percent. It has since been announced that the rate will remain at 60 percent until 2013, when the current research funding framework expires.
- In June 2009 the German federal government renewed the Higher Education Pact with state governments. New investments will total €8 billion over the next ten years, with €1.7 billion available to meet costs associated with research sponsored by the German Research Association.
- India's 2009 budget included a 40 percent increase in higher education spending, a portion of which will likely be directed towards meeting institutional costs.
- Australia has announced a specific reimbursement rate target of 50 percent, to be achieved by 2014.

AUCC's pre-budget submission to the House of Commons Standing Committee on Finance proposed significant increases to the core budgets of the three federal granting agencies, which would be accompanied by higher funding for the Indirect Costs Program. AUCC's proposal would see the reimbursement rate for institutional costs rise to a minimum of 30 percent by 2014-15.

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1. Context

1.1 What are institutional costs?

Institutional costs – also known as indirect costs – are costs incurred by universities as their faculty and students carry out research funded internally by universities themselves or by external partners such as government departments and agencies, domestic and international businesses, or health charities and not-for-profit organizations. In the process of providing essential institutional support for research, universities incur costs associated with:

- operating, maintaining and renovating research facilities such as libraries and computer networks;
- managing the research process, from preparing proposals to accountability and reporting;
- ensuring regulatory and safety compliance including human ethics issues, animal care, biohazards and environmental assessment; and
- managing intellectual property and promoting commercialization and knowledge mobilization.

These costs are often referred to as indirect costs because they are not attributable directly to any one research project but rather provide more general support for the university research environment as a whole.

Several studies have been conducted in Canada to assess the institutional costs of research. In 1982, the Canadian Association of University Business Officers (CAUBO) published a report that found that, for the 14 universities that carried out more than 60 percent of sponsored research, indirect costs represented 50 percent of total direct costs (not including faculty salaries). A 1996 report commissioned by CAUBO, the Association of Universities and Colleges of Canada, and Industry Canada put the institutional costs of research at an average of 54 percent of direct costs. More recently, the Advisory Committee on Science and Technology found compelling evidence that indirect costs should be funded at an initial rate of 40 percent of direct costs, with an intention of increasing this to 45 percent of direct costs. AUCC itself has long argued that institutional costs for all institutions should be funded at a rate equal to at least 40 percent of the direct costs of research.

1.2 Why is it important to fund institutional costs?

Research and innovation are essential for success in today's global economy. In these difficult economic times, supporting universities' ability to contribute to Canada's short-term recovery and long-term economic growth and prosperity takes on even greater significance.

The federal government has made major investments in research over the last decade, including university research – a major area of strength for Canada relative to other countries. In 2007 alone, federal funding for university research was more than \$2.5 billion. These federal funds support:

- developing, attracting and retaining highly qualified research talent;
- putting in place and operating some new cutting-edge research infrastructure and facilities;
- producing new ideas (i.e., the direct costs of research); and
- providing institutional support for the research enterprise.

The appropriate mix and level of investment in university research is important because a lack of resources for one of the four foundational elements listed above can have a significant impact on the capacity of the other elements to be put to efficient use. For example, the emphasis over the last decade on addressing the people and infrastructure components of the university research environment has created strong pressures to fully support these people and maintain and operate their equipment by funding the direct and institutional costs of their work. Internationally competitive support for the direct costs of research and for institutions to manage the activities carried out by their researchers is essential in order to maximize the investments in people and infrastructure made over the last decade. Alleviating the pressure points on all four foundational elements of the university research enterprise is a constant and evolving challenge for senior university administrators and for all funders of the Canadian university system.

1.3 Institutional costs policy in Canada

Since 2001, the federal government has taken steps to redress the historic burden on institutions with regard to the unfunded institutional costs of research funded by the three federal granting agencies – the Canadian Institutes for Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC) and the Natural Sciences and Engineering Research Council (NSERC). The message conveyed for many years by AUCC was reinforced in 2000 when the Advisory Council on Science and Technology reported on *Creating a Sustainable University Research Environment in Canada*. The ACST called institutional costs “the price of admission” if Canada wanted to carry out world-class research and concluded that “the federal objectives of creating and transferring new knowledge through sponsored research will no longer be attainable if the university research environment is not supported along with the direct costs of research projects.” The Council recommended the creation of a new pool of funds to fund institutional costs. At the outset this fund would be worth 40 percent of the direct costs of research provided by the three federal granting agencies. At the time this would have provided an institutional costs fund valued at \$253 million per year (based on the granting agencies’ support for research between 1995 and 1998). The Council also recommended that this figure be increased over three years to 45 percent of the granting agencies’ combined budgets, for a figure of \$450 million per year. (The apparently disproportionate growth in the dollar value of the fund, despite the proposed rate only increasing from 40 to 45 percent, was due to significant increases in the granting agencies’ budgets for funding the direct costs of research.)

In Budget 2001, the federal government announced a one-time payment towards the institutional costs of research. In 2003, the Indirect Costs Program was established with an annual budget of \$225 million which, at the time, represented 27 percent of the direct costs of research. This figure has risen annually and for the most recent year (2008-09) the Program's budget was \$330 million. This translates to an overall reimbursement rate of 24.9 percent, given the concurrent growth in the direct costs funding base on which the rate is calculated.

Despite the ACST's recommendation that institutional costs be funded at a rate of at least 40 percent of direct research costs, the Indirect Costs Program does not provide support at that level. Indeed, Budget 2009 did not increase the Program's budget and the Strategic Review exercise carried out by the granting agencies will actually result in a reduction to the Indirect Costs Program. AUCC estimates that the net result of Budget 2009 will be a reduction in support to universities, to an average reimbursement around 21 percent of direct research costs in 2010-11, if no further support is provided for the program in the next federal budget.

1.4 The need to be internationally competitive

At a time when research and innovation are becoming increasingly important to Canada's future economic and social well-being, all four foundational elements of the research enterprise need to be internationally competitive. The ACST reported in 2000 that "Canada faces significant challenges in attracting and retaining world-class researchers. As knowledge becomes more and more central to economic advantage, competition for talent will continue to intensify. A 'virtuous circle', whereby today's best and brightest are magnets for the next generation of the best and brightest, is a necessary building block if Canada is to have a leading knowledge-based economy. To create the opportunities that will make this virtuous circle a reality, we must ensure that Canada's university research system is globally competitive."

These words are just as true in 2009 as they were in 2000. In its 2007 science and technology strategy, the federal government committed itself "to ensure that its policies and programs inspire and assist Canadians to perform at world-class levels of scientific and technological excellence" and stated that "Canada must be a magnet for talent." While Canada is better positioned today than it was a decade ago in terms of overall funding for the university research enterprise, we need to consider the system as an organic whole. This means ensuring that we are internationally competitive in all aspects of the research effort – including the level at which we fund the institutional costs of research.

What follows is a brief examination of how other jurisdictions – all of which are key competitors of Canada in terms of attracting and retaining both the current and the next generation of researchers – have addressed the institutional costs issue. For the purposes of this paper, the jurisdictions examined are the United States, the United Kingdom, the European Union, and Australia. Future examinations of this and other research-related issues will also need to bear in mind the rise of Brazil, China, Russia and India as major competitors as well.

The mechanisms and formulas used to calculate indirect costs vary from country to country and will be outlined below. Also important to note throughout this discussion is the importance of how the direct cost base is calculated. Where indirect costs are reimbursed as a percentage of direct costs, the inclusion or exclusion of certain categories of cost from the direct cost base will have a major bearing on the final reimbursement. That is, even if two jurisdictions had the same indirect cost reimbursement rate, if one jurisdiction includes more items in the direct cost base, the actual reimbursement will be higher.

In the jurisdictions considered in this paper, the major difference in terms of calculating the direct cost base is the treatment of research faculty salaries. In some cases, all or part of the salaries are considered an eligible direct cost, thus they are included in the indirect cost reimbursement calculations. In others, they are not. The following chart provides a brief summary which should be kept in mind while reading the paper.

	Canada	U.S.	U.K.	E.U.	Australia
Direct costs base	All costs directly associated with a research project, <u>excluding</u> researchers' salaries	All costs directly associated with a research project, <u>including</u> researchers' salaries, and <u>excluding</u> equipment and payments above \$25,000 to subcontractors	All costs directly associated with a research project, <u>including</u> researchers' salaries	All costs directly associated with a research project, <u>including</u> researchers' salaries	All costs directly associated with a research project, <u>excluding</u> researchers' salaries
Indirect costs	<ul style="list-style-type: none"> - Facilities - Research resources - Management and administration - Regulatory requirement and accreditations - Intellectual property 	Facilities and administration costs (as described in the table in section 2.2 of the present document)	Given the full costs model, the distinction between direct and indirect costs is not possible to document independently	All those eligible costs which cannot be identified by the beneficiary as being directly attributed to the project but which can be identified and justified by its accounting system as being incurred in direct relationship with the eligible direct costs attributed to the project	All eligible costs under the Institutional Grants Scheme fund (as described in section 5.2 of the present document)
Rate	Overall reimbursement rate of 23.3 percent in 2009 -10	Institutionally negotiated rates averaging 51-52 percent	Overall reimbursement rate estimated above 50 percent	Overall reimbursement rate of 40 percent at a minimum, and closer to 60 percent for those with detailed tracking systems	Overall reimbursement rate of approximately 30 percent

2. The United States

2.1 The rationale for funding institutional costs

The United States does not have a dedicated program that funds institutional costs. Instead, universities negotiate individually with the federal government to determine their institution's indirect cost reimbursement rate under policies laid out in OMB (Office of Management and Budget) Circular A-21. This policy has been in place since 1958 and has undergone a number of revisions over the last forty years.

Circular A-21 clearly states the policy rationale for funding the institutional costs of research, noting that “the principles are designed to provide that the Federal Government bear its fair share of total costs, determined in accordance with generally accepted accounting principles except where restricted or prohibited by law.” The federal government accepts that it has an obligation to fund the institutional costs of research.

2.2 Which institutional costs are funded?

Circular A-21 establishes two broad cost pools for institutional costs: facilities costs and administrative costs. A portion of these costs can be attributed to the research enterprise and are thus eligible for funding.

Cost Pool	Eligible Institutional Costs
Facilities	<ul style="list-style-type: none"> - Equipment depreciation and use allowance - Building depreciation and use allowance - Operations and maintenance (utilities, maintenance and repairs, hazardous waste disposal, radiation safety, security, interest on debt incurred for capital projects) - Interest on debt associated with buildings and equipment - Libraries
Administration	<ul style="list-style-type: none"> - General executive and administrative offices (e.g. President, Chancellor, Provost, Counsel) as well as purchasing, general accounting, information systems and human resources - Departmental administration (e.g. administrative offices of schools, deans, academic departments and research centres) - Grant and contract administration (e.g. protection of human participants in research, animal care, scientific and regulatory compliance, review and processing of grant applications, and grant accounting and reporting) - Student services (research can account for a small portion of expenditures here)

2.3 Calculating institutional costs

Circular A-21 sets out procedures to calculate the “indirect cost rate” which is institutional costs expressed as a percentage of Modified Total Direct Costs. Modified Total Direct Costs (MTDC) include all those costs which are readily identified with specific research projects including, for example: laboratory supplies; travel related to the project; consulting and other specialized services; and salaries and benefits for faculty, technicians, post-doctoral fellows and students involved in the project. MTDC also includes subcontracts for project activities carried out at

other institutions, provided that these are valued at less than USD 25,000. **It is important to note that MTDC can include a portion of the salary of the principal investigator(s); up to the limit of a salary cap specified by Congress (currently \$191,000 for NIH); for example, if the principal investigator spends a month on the project, then a month's salary is included in cost estimates for the project. In Canada, faculty salary costs are not included in the direct cost base used to calculate institutional cost reimbursement.**

To arrive at the indirect cost rate, American universities determine their costs in each of the cost pools noted above (Section 2.2). Detailed studies are conducted to determine how much of each cost pool can be attributed to federally-sponsored research. Institutions then develop proposals for rates of reimbursement. The institutional cost rate is calculated by dividing the eligible indirect costs by the MTDC.

Universities are somewhat limited in seeking reimbursement for institutional costs in that Circular A-21 limits the amount that can be claimed under the “administration” heading to 26 percent of MTDC. A study carried out by the RAND Corporation in 2000 noted that regulatory compliance costs were growing at a rapid rate. Further studies of cost escalation have been done by the Committee on Governmental Relations, which has estimated that the median of actual costs under the “administration” category is 28.1 percent.

Universities’ proposals are submitted to one of two federal agencies for review, negotiation and approval. In more than 90 percent of cases this is the Division of Cost Analysis (DCA) at the Department of Health and Human Services. In the remaining cases – primarily institutions like MIT that conduct a great deal of research sponsored by the Department of Defense – the agency responsible is the Office of Naval Research. The methodology, developed over several decades, is highly detailed: for example, the DCA Best Practices Manual (December 2006) for reviewing the cost rate proposals is 146 pages long.

The rates initially proposed by universities are often higher than the rates that are finally agreed upon for reasons such as the following: (1) inclusion of administrative costs in the university proposals that are subsequently excluded by the 26 percent cap; and (2) differences over the measurement of allowable costs and the proportions that can be allocated to sponsored research. Once negotiated, rate agreements are typically in effect for two or three years.

2.4 Reimbursement rates

Because of the way the process works, there is no single rate that applies across institutions. Each university negotiates its own rate based on its own circumstances. In some cases, different rates apply within a single institution – for example, Harvard Medical School has its own negotiated rate that differs from Harvard University as a whole.

The average negotiated rates of reimbursement have held steady at close to 51.5 percent of MTDC since 2000. Among the negotiated reimbursement rates currently in effect at a selection of public and private American universities, one will find Penn State at 47.5 percent, Ohio State at 50 percent, UCLA at 54 percent, Duke at 56 percent, Cornell at 59 percent, Princeton at 61 percent and Harvard at 67 percent.

Actual rates of reimbursement may vary from the negotiated rate, depending on the department or agency sponsoring the research. In some cases, there are Congressionally-imposed caps, such as for the Department of Agriculture and, more recently, basic research funded by the Department of Defence. It must also be noted that, in the United States, rates are calculated on a broader range of direct costs than in Canada. In particular, the inclusion of faculty salaries within the direct cost base in the United States means that American institutions recover a higher absolute amount of institutional costs.

Despite the comparative generosity of the U.S. indirect costs regime, the Committee on Governmental Relations estimates that in 2006 universities subsidized the unfunded institutional costs of sponsored research (both federal and non-federal) to an amount of at least USD 2.3 billion. This is from a total of USD 47 billion in university research and development funding.

3. The United Kingdom

3.1 The rationale for funding institutional costs

Until 2005, the United Kingdom funded institutional costs at a rate of 46 percent of direct costs. However, the approach to funding institutional costs in the UK has undergone a major transformation in recent years. The current motivation for funding institutional costs was laid out in the British government's 2002 *Cross-Cutting Review of Science and Research: Final Report*. The Report states that "institutions should be accountable for ensuring that they recover the full costs of research" and that "the working assumption is that the funders and users of the research base need to contribute more, along with government, to ensure its sustainability." The cross-cutting review found that "universities are cross-subsidising publicly and non-publicly funded research from other earned income." This had led to a situation where "the present research funding position is therefore unsustainable in the medium to longer term."

A series of events led the government to this conclusion. These events were largely triggered by the Transparency Review of Research commissioned by the Joint Costing and Pricing Steering Group (JCPSG) in 1999. The Transparency Review concluded university research required activity-based costing that needed to include key principles and criteria:

- the approach must be capable of being implemented by the whole sector;
- it must be compatible with other developments in institutions;
- it should focus on important costs;
- it must be acceptable to sponsors as rigorous and auditable;
- it must allow institutions flexibility to move at different paces; and
- it should specify standards to be achieved.

The United Kingdom has what is known as a Dual Support system. Research Councils (analogous to Canada's granting agencies) operate on a UK-wide basis and provide grants for

specific projects and programmes, while Funding Councils (one each for England, Scotland and Wales) provide block grant funding to support research infrastructure and enable institutions to develop and undertake their own research programs. The block grants (known as Quality Related or QR grants) are also intended to provide universities with government funding to cover some of the institutional costs of research commissioned by the private sector, government departments, charities, the European Union and other international bodies. Funding Council support for research is not linked to specific research projects and is distributed on the basis of quality and excellence as determined by the results of the Research Assessment Exercise which rates the research done at individual universities and departments.

In July 2004, the UK government published its *Science & innovation investment framework 2004 – 2014* which laid out a strategy to deal with numerous issues, including institutional costs. (In the UK, institutional costs comprise part of the full economic cost of research and that phrase will be used here.) Among the ambitions laid out in the Framework is the need for “sustainability in research funding accompanied by demonstration by universities and public laboratories of robust financial management to achieve sustainable levels of research activity and investment.”

The Framework noted that while spending on the direct costs of research had increased substantially in previous years, “without some change, this performance is not sustainable over the long term. The total costs of externally funded research projects and training in universities have risen at an unsustainably faster rate than the rise in core QR funding.” The Framework also noted that “annual deficit in the full economic cost of 'public interest' research undertaken by [universities] in 2005-06 is likely to fall in the range of £0.8 – 1 billion.”

3.2 Which institutional costs are funded?

Research Councils provide funding based on the concept of Full Economic Costs (fEC), which is established using the Transparent Approach to Costing (TRAC) system. The purpose of TRAC is to help universities calculate the full economic cost of their research activities by providing a basic set of costing tools. TRAC allows universities and decision-makers to consistently and transparently allocate the real costs of carrying out research on a project-by-project basis.

The TRAC system includes various costs that in Canada would be considered both direct and institutional costs. Under the fEC system, Research Council grants provide funding to cover:

- academic time;
- adjustments for building depreciation;
- research assistants and consumables;
- a portion of estate costs (including the costs of research facilities and laboratory technicians); and
- indirect costs which are defined as a portion of central services (such as finance, registry, planning, library and learning facilities, information technology, staff and student facilities, secretariat, central management), academic departments' support staff and costs, the support time of academics, and the cost of capital employed.

Since 2005 all individual research grant applications are made on the basis of the TRAC system.

In addition to the institutional costs that are supported through individual research grants, the QR block grants flow directly to institutions to support their overall research efforts. The block grants can be used to fund blue-sky research, to invest in facilities and maintenance, or to meet costs not covered by individual research grants. The block grants also include an amount that is to be used to cover the institutional costs of research commissioned by charities and the private sector (if that research is deemed to be in the public interest). The government's intent is that eventually universities will recover full costs directly from charities but the government is providing the funding until a suitable arrangement with charities can be made. Universities must already seek full economic costs from private-sector research sponsors.

3.3 Calculating institutional costs

Under the TRAC system, institutional costs are calculated as part of the fEC of the research project. Research Councils are expected to fund 80 percent of the fEC of successful grant applications with the university using its block grant to meet any shortfall.

There is no set rate for calculating the institutional and other costs that comprise the fEC. Each institution calculates its own rates based on the TRAC system.

In order to establish rates, institutions first determine the amount of time that academics spend on research, teaching, and other activities. Institutions determine how to best go about this, but the most common methods are having a statistical sample of academics complete a detailed one- or two-week diary covering all of their activities, or having all academics complete a less rigorous time recording procedure three to six times a year.

Total indirect costs (as defined above) and estates costs are then allocated to the research function based on the percentage of academic time that is devoted to the research function. A further calculation is then made to determine a figure of £ per FTE (full-time equivalent) researcher for indirect costs and for estate costs. When grant applications are made, the amount of academic time the project is estimated to take is converted to an FTE equivalent; this figure is multiplied by the indirect cost rate and the estate cost rate to calculate a monetary figure.

Example: A university has total institutional costs of £100 million a year. Its faculty time survey shows that 40 percent of faculty time is spent on research. This means that £40 million is the total indirect cost pool. If there are the equivalent of 1,000 full-time faculty members, this gives an indirect cost rate of £40,000 per FTE faculty member.

A research proposal is made that involves faculty time equal to 6 months of full-time activity. This would result in an indirect cost of £20,000 (£40,000 x 0.5 years).

3.4 Reimbursement rates

Because each institution in the UK makes its own calculations and determines its own charge-out rates under the fEC system, there is no set reimbursement rate for institutional costs. Prior to implementing TRAC methodology and full economic costing, institutions were reimbursed for institutional costs at a rate of 46 percent of direct costs. (It is important to note that academic time was not included in the direct cost figure at that point.)

Since 2005 Research Councils have funded grants at a rate of 80 percent of fEC. The government's stated intent is to increase that figure to 100 percent soon after 2010. Government departments have since 2002 funded research they commission at 100 percent of fEC and universities must, in most cases, seek 100 percent costing from private sector partners.

The British government estimates that implementing the Dual Support mechanism added £1 billion a year to university research in 2007-08. Research Council funding increased by £200 million a year to meet the increased cost of funding 80 percent of fEC without any expectation that the amount of research being conducted would increase. The balance of funds has been invested in QR grants and in the allocation that meets institutional costs for research commissioned by charities (which is also transferred through the QR mechanism).

As mentioned above, the recovery of institutional costs for research commissioned by charities is treated differently at the current time. For such "public interest" research the government has given an exemption to the general rule that universities must recover full economic costs. Additional funds have been provided through the block grant system to help universities recover the institutional costs of this research. The total amount of this funding in England was £135 million in 2006-07 and this is expected to increase to £180 million in future years.

4. The European Union

4.1 The rationale for funding institutional costs

The European Union's main instrument for funding research over the period 2007 to 2013 is the *Seventh Framework Programme for research and technological development (FP7)*. FP7 has an overall budget of €50 billion from 2007 to 2013, an increase of 43 percent in real terms over the previous framework programme (which ran from 2002 to 2006). FP7 complements national research programs administered by each member country.

FP7 does not provide a specific policy rationale for funding the institutional costs of research. The goal of FP7 itself is "to respond to Europe's needs in terms of jobs and competitiveness, and to maintain leadership in the global knowledge economy." The FP7 Guide to Financial Issues states clearly that "[t]he reimbursement of beneficiaries shall be based on their eligible direct and indirect costs."

4.2 Which institutional costs are funded?

FP7 deems research costs to be eligible if they are:

- actual
- incurred during the project
- determined according to the usual accounting and management principles
- used solely for project objectives
- consistent with the principles of economy, efficiency and effectiveness
- recorded in accounts.

FP7 sets out definitions of direct and indirect costs for the purposes of the programme. Direct costs are as follows:

- all personnel assigned to the project
- travel and subsistence allowances for staff taking part in the project
- the purchase of durable equipment
- the costs of consumables and supplies
- subcontracting (however, subcontracting is excluded from the base on which indirect costs are calculated).

Indirect costs are defined as “all those eligible costs which cannot be identified by the beneficiary as being directly attributed to the project but which can be identified and justified by its accounting system as being incurred in direct relationship with the eligible direct costs attributed to the project.” Examples of indirect costs given in the FP7 financial guide include: rent or depreciation of buildings; utilities; maintenance; insurance; supplies and office equipment; legal advice; communications and connection costs; postage; administration and financial management; human resources and training; and documentation.

4.3 Calculating institutional costs

Under FP7 the EU is moving for the first time to a full economic costs model similar to the UK's TRAC system. The definition of eligible costs has been simplified and a transition period has been put in place whereby, from 2007 to 2010, organizations have the option of using full cost accounting or using a fixed rate to determine indirect costs. (This allows a period for institutions that do not have a system like TRAC to develop their costing methodologies.)

FP7 gives recipients several options to calculate their indirect costs. *Real indirect costs* are calculated using an analytical accounting system (similar to TRAC) and can be identified at the departmental/research centre level. A *Simplified Method* can be used if a university is unable to provide real indirect costs as above but can apply its accounting practices at the institutional level. A *Standard Transition Flat Rate* applies to any recipient unable to identify real indirect costs with any certainty; in this case they may opt for a flat rate of 60 percent of total eligible direct costs.

4.4 Reimbursement rates

The transitional flat rate of 60 percent applies for grants awarded under calls for proposals closing before January 1, 2010. For grants awarded under calls closing after that date FP7 foresees an “appropriate” level of flat rate which should be an approximation of the real indirect costs and which will be at least 40 percent of eligible direct costs.

The 60 percent transitional rate is well above the rate of reimbursement in Canada and is calculated on a wider base that includes faculty time. From 2010 onwards the flat rate will be revised but will remain at a level of at least 40 percent – or almost 15 percentage points higher than the overall rate currently seen under Canada's Indirect Costs Program. (When the broader

base that FP7 uses to calculate indirect costs is taken into account, the 40 percent rate is likely more than double the overall reimbursement rate in Canada.)

5. Australia

5.1 The rationale for funding institutional costs

In 2008 the Australian government undertook a comprehensive review of its innovation policies and strategies and the government is considering its response to the main report it commissioned from an expert panel: *Venturous Australia: Building Strength in Innovation*. *Venturous Australia* made strong statements about the issue of institutional costs. It called for “adoption of full funding for the costs of research at universities” and stated that “a strong and sustainable public research sector requires universities to be providers of research, not investors in research.” The report noted that research is not fully funded under the current system and is subsidized by other university revenue streams. In the words of the authors, “this cross-subsidisation of research from teaching profoundly undermines both activities.”

5.2 Which institutional costs are funded?

Australia has a dual support system for funding university research. The two components are competitive grants such as those awarded by the Australian Research Council, and block grants such as the Research Infrastructure Block Grants (RIBG) program and the Institutional Grants Scheme (IGS).

In 2006 competitive grants awarded to universities total just under AUD 980 million. This represented 18 percent of Australian HERD that year; universities themselves contributed AUD 3.2 billion (59 percent of HERD), primarily through salary costs but also including other institutional costs. The Australian Research Council has estimated that it only funds about 60 percent of the direct costs of research it sponsors, and contributes nothing towards indirect costs.

The Institutional Grants Scheme was worth AUD 296 million in 2006. Its aim is to maintain and strengthen Australia's knowledge base and research capabilities by developing an effective research and training system in universities. IGS funds may be used to:

- support the general fabric of research and research training at universities
- allow universities to manage their own research activities and set their own priorities
- assist universities to respond flexibly to their research environment in accordance with their own strategies
- enhance support for areas of research strength.

IGS allows for expenditures on libraries, research support, animal care, ICT, human resources, financial services, research and office space, security and cleaning, and building maintenance and refurbishment. IGS is allocated to eligible institutions based on a calculation that factors in two years' worth of research income and publications produced, and one year of higher degree research student numbers. It is the only fund that covers a portion of institutional costs.

A number of other block grants support Australian university research. The Research Infrastructure Block Grants scheme is the main block grant in support of research infrastructure. Worth AUD 200 million in 2006 it is intended to:

- enhance the development and maintenance of research infrastructure
- meet project-related infrastructure costs
- remedy deficiencies in current research infrastructure
- ensure that areas of recognized research potential have access to the support necessary for development.

RIBG grants are paid directly to universities and are determined on the basis of their relative success in attracting research income from competitive funding schemes.

The National Collaborative Research Infrastructure Strategy is investing AUD 542 million between 2004-05 and 2010-11. Eligible infrastructure projects are those that promote university-industry collaboration.

The Education Investment Fund was announced in 2008. It will see AUD 11 billion invested over the next decade for the construction, renewal and refurbishment of research facilities and major research institutions. Under the most recent round of funding, eligible university projects are those valued at at least AUD 15 million and that:

- transform Australia's knowledge generation and teaching capabilities;
- boost participation in tertiary education;
- position Australia to meet domestic skills needs now and into the future;
- enhance Australia's innovation capacity;
- invigorate the growth of Australia's research capabilities; or,
- enhance Australia's international competitiveness in education and research.

5.3 Calculating institutional costs

Since there is no program or model in place that requires the detailed calculation of indirect costs, there is no methodology to do so. As part of the innovation review, the Australian government commissioned the Allen Consulting Group to prepare a paper on the full costs of research; that paper found that for two universities that were looked at in depth, indirect costs represented 60.5 percent and 66.2 percent of research grants.

5.4 Reimbursement rates

Because there is no program to provide specific compensation for institutional costs, there are no reimbursement rates to report. However, as an illustrative point, one could consider the IGS

program. While it is not explicitly an institutional costs program it is designed to help universities meet a portion of what AUCC would consider to be institutional costs. Taking 2006 figures, the program provided block grants of AUD 296 million; competitive research grant funding that year was AUD 980 million. This would translate to an overall rate of 30 percent.

The *Venturous Australia* report quantifies the gap between research funding and the actual costs of carrying out research; in 2006 Australian universities received AUD 2.2 billion from external funders for research activities and spent AUD 3.2 billion of their own resources to support research, for a total research expenditure of AUD 5.4 billion. It was noted that the IGS and RIBG schemes “are insufficient to address the shortfall.”

5.5 Innovation Review

As part of the Innovation Review noted above, the Australian Department of Innovation, Industry, Science and Research commissioned a study by the Allen Consulting Group. This paper recommended that universities be given a choice between moving towards a full economic costing model (based on the UK TRAC system) or accepting a fixed rate of direct costs. The minimum recommended rate in the latter case is 50 percent of direct costs. (The study also recommends that faculty salary costs should be funded as direct research costs, which currently they are not. The effect of this would be to broaden the direct cost base on which indirect costs would be calculated.)

In its submission to the Innovation Review, Australia's Group of Eight research-intensive universities recommended moving towards the UK model. While the Australian government has not provided a detailed policy response to the reports in question, in a speech on March 9, 2009, Australian Innovation Minister Kim Carr indicated that the government would “progressively address the gap in funding for the indirect costs of research, subject to the capacity of future budgets” with an aim “to put university research on a sustainable footing and ensure that the community gets the highest possible dividend on its investment in research projects.” In return for increased funding, Australian universities will be expected “to provide better, more meaningful data on research costs through activity-based reporting, and to meet specific performance targets to be developed in consultation with the sector.”

5.6 2009 Australian federal budget

The Australian federal government delivered its 2009 budget on May 12. The budget outlined significant new investments to help universities meet the indirect costs of research.

Over the next five years, universities will receive an additional AUD 813 million to help fund indirect costs. Funding will ramp up each year over that period and by 2013-14 incremental funding will be AUD 301 million. The funds will be allocated through the existing Research Infrastructure Block Grant.

The method for allocating funds will also change. As noted above, RIBG funds are currently allocated to institutions based on their success at attracting competitive research grants. In calculating the block grant in future years, 20 percent will be based on research grant income and 80 percent of funds will be contingent on universities undertaking activity-based costing of the indirect costs of research and meeting performance targets which are to be developed and agreed to during 2009-10.

6. Future research

This paper has compared Canada with a few key competitor countries that have similar levels of economic development and broadly similar approaches to promoting and funding research.

However, Canadian universities are also competing for research talent with emerging countries, primarily China, Russia, India and Brazil, which have identified innovation as the primary means of further developing their economies. These countries have all substantially increased their investments in innovation in recent years and any examination of Canada's international competitiveness will need to consider developments in these countries.

Conducting research on these emerging countries will pose particular challenges. In particular, there are much wider variations in economic systems and the structure of the research enterprise than there are in the countries considered above. For example, in the case of China, the OECD reports that less than 10 percent of research is carried out in universities, with more than two-thirds conducted by the private sector and the remainder being carried out at public research institutes. These public research institutes are owned by the government and are fully-funded for the research they conduct. Within the university sector in China, key national universities are directly owned by the Ministry of Education or by other central government ministries. Approximately 100 top universities have been identified to receive concentrated investment intended to allow them to compete with the top universities internationally.

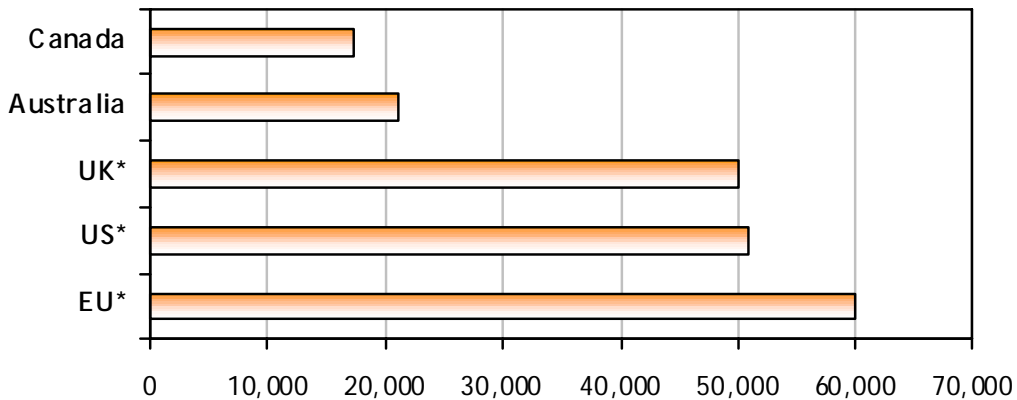
AUCC will continue to gather information about the research funding models in these countries to determine whether direct comparisons with Canada are possible.

7. Implications for Canadian universities

All countries are increasingly seeing research and innovation not just as part of their economic strategies, but as the main driver of future economic prosperity and social well-being. Canada is competing not just with G7 countries, but with countries like Sweden and Finland that already devote a greater share of their GDP to research and innovation, and emerging countries such as Brazil, Russia, India and China that are devoting increasingly more resources as well.

Canada must be able to compete with regard to all aspects of the research endeavour. This brief survey of four jurisdictions indicates that, when it comes to institutional costs, Canada is not currently competitive and stands to lose further ground. The following graph provides an illustration of how wide the gap currently is.

Based on the overall or average reimbursement rate in jurisdictions compared below, for a typical research project with direct costs of 70,000 (national currency) and salaries of 30,000, indirect costs would be reimbursed as follow:



* Base includes salaries

Where reimbursement rates for institutional costs can be readily identified and measured – the United States and the European Union – those reimbursement rates are significantly higher than the overall Canadian rate. Reimbursement is also calculated on a broader range of direct costs, most notably faculty salaries.

In the case of the United Kingdom, a system that was already more generous than Canada’s (an indirect cost reimbursement rate of 46 percent of direct costs) has been substantially enhanced through the use of the TRAC methodology and the move towards full economic costing.

Australia, while it lacks a dedicated indirect costs program, has block grants that effectively support institutional costs at a higher rate than in Canada. The 2009 Australian federal budget allocated significant new resources to help meet the indirect costs of research; overall, the available funds will almost double within five years. The budget also outlines a new allocation method largely based on the better tracking of costs, which would be in line with the UK model.

In the absence of a renewed commitment on the part of the federal government, Canadian universities will fall further behind their international competitors. This will affect both universities’ ability to provide an internationally competitive research environment and accountable, efficient and effective end-to-end management of the university research enterprise. It will also further strain universities’ operating budgets at a time when they can least afford it. Insofar as all four foundational elements of the university research enterprise are not fully supported, the sustainability and competitiveness of the Canadian research endeavour will become increasingly questionable. Other countries have recognized this with regard to their own research efforts and have taken action.

In order to improve Canada's competitive position, two main questions will need to be addressed:

- 1. In terms of the resources available to support institutional costs, policy makers will have to consider what additional funding will be required going forward to ensure that Canadian universities can compete with their international counterparts.**
- 2. In terms of the funding model, universities and policy makers will need to determine whether the approach that has been taken in Canada is sufficient or appropriate in light of international developments.**

Glossary

ACST	Advisory Committee on Science and Technology (Canada)
CAUBO	Canadian Association of University Business Officers
Direct Costs	<p>Research costs that are readily identified with specific research projects, such as: laboratory supplies; travel related to the project; consulting and other specialized services; the purchase of durable equipment; and the costs of consumables and supplies.</p> <p>In some cases, direct costs include the salaries of personnel assigned to the research project.</p>
Dual Support System	Term used in the United Kingdom and Australia to describe how public research funding is structured. The two strands of support are: competitive grants for individual research projects; and block grants, paid directly to universities, tied to the research enterprise.
FP7	The Seventh Framework Programme for Research and Technological Development. This is the European Union's primary research and innovation funding mechanism.
Full Economic Cost of research (fEC)	In the United Kingdom, fEC includes the direct and institutional costs of research projects. Since 2005, research grant proposals must be based on the fEC of the project.
Higher Education Funding Councils	In the United Kingdom, the bodies responsible for allocating and distributing block grants to universities and colleges. There are separate Councils for England, Scotland and Wales.
Indirect Costs	<p>Costs incurred by universities as their faculty and students carry out research funded by external partners. In the process of providing essential institutional support for research, universities incur costs associated with:</p> <ul style="list-style-type: none">• operating, maintaining and renovating research facilities such as libraries and computer networks• managing the research process from preparing proposals to accountability and reporting• ensuring regulatory and safety compliance including human ethics issues, animal care, biohazards and environmental assessment

- managing intellectual property and promoting commercialization and knowledge mobilization.

These costs are referred to as indirect costs because they are not attributable directly to any one research project but rather provide more general support for the university research environment as a whole.

Indirect Costs Program

A Canadian government program, established in 2003, intended to provide partial reimbursement for Canadian universities' institutional costs related to research sponsored by the three federal granting agencies.

Institutional costs

A phrase used interchangeably with indirect costs by the Association of Universities and Colleges of Canada.

Joint Costing and Pricing Steering Group (JCPSG)

From 1997 to 2005, this was an advisory group in the United Kingdom that brought together representatives of universities, colleges and higher education funding bodies. The JCPSG developed the TRAC costing methodology that is used to calculate the full economic costs of research projects.

MTDC

In the United States, Modified Total Direct Costs refers to the allowable direct costs for a research project to which the indirect cost reimbursement rate is applied.

OMB

Office of Management and Budget (United States)

Research Councils

In the United Kingdom and Australia, these are the equivalent of Canada's federal granting agencies.

Transparent Approach to Costing (TRAC)

Methodology developed in the United Kingdom to apportion institutional costs to research, teaching, and other functions. TRAC provides the basis for calculating institutional indirect cost rates and identifying the full economic costs of research projects.