



FOCUSING ON RESULTS: **ATTRACTION AND RETENTION**

Funding for research infrastructure enhances the ability of Canadian academic institutions to attract and retain a diverse pool of world-leading national and international researchers

June 2018

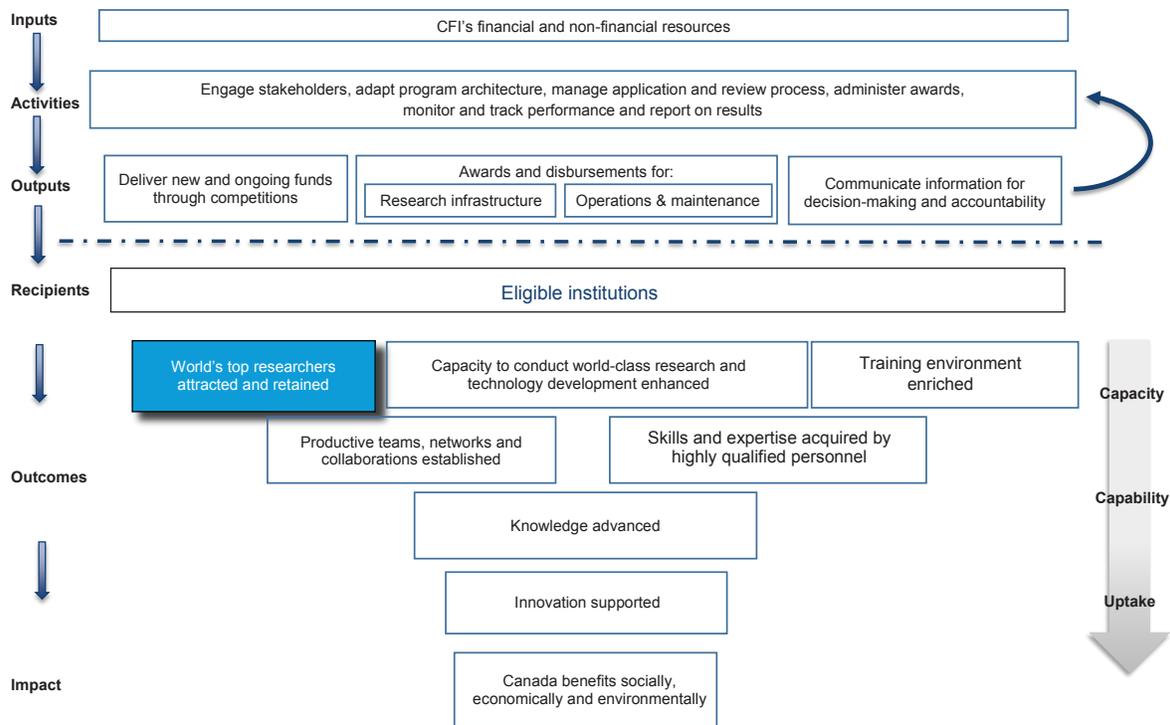
INTRODUCTION

The Canada Foundation for Innovation (CFI) awards funding for research infrastructure through an independent, competitive merit-review process to Canada’s universities, colleges, research hospitals and non-profit research institutions to increase their ability to carry out high-quality research.

The organization’s objectives and expected results, as outlined in its funding and contribution agreements with the Government of Canada, are operationalized through a logic model (**Figure 1**).

This report presents evidence that CFI-funded infrastructure enables Canadian institutions to attract and retain top researchers.

Figure 1: CFI logic model



Data presented in this report was obtained through several sources:

- CFI project progress reports submitted between 2013–2017
- CFI award database
- Data from the Tri-agency Institutional Programs Secretariat (TIPS)
- Recent focus groups with early career researchers leading CFI-funded projects, as well as interviews with research administrators at four Canadian universities

(See the [Annex – Methodology](#) section for further details.)

KEY FINDINGS

Funding for research infrastructure is used as a key incentive by Canadian academic institutions to enhance their ability to attract and retain a diverse pool of world-leading national and international researchers. This report demonstrates that CFI infrastructure enables institutions to:

- **Recruit researchers from different countries and different sectors.**
 - Based on the CFI project progress report from 2013-17, a little over half of newly recruited researchers came from foreign countries, predominantly from the United States.
 - The majority of them come from academia, but approximately one in 10 were recruited from non-academic organizations.
- **Attract and retain researchers at different career stages.**
 - For researchers named on John R. Evans Leaders Fund (JELF) proposals, the time since completion of PhD degree or equivalent as a marker of career stage ranges from less than one year up to over 40 years with the majority being early career stage of five to 10 years.
 - Focus groups with early career researchers confirmed that the opportunity to apply for CFI funds was important in making their start-up offer from a research institution competitive, particularly against international offers, and that it influenced their decision to join or remain at their institution.
- **Attract and retain researchers who are recognized as world-leading.**
 - The ability to secure competitive research funding is an indicator of excellence and 77 percent of researchers leading JELF-funded projects received funding from at least one of the three federal research funding-agencies (the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC)) within two years of their CFI award.
 - Over the period of 2013-17, 30 to 40 percent of researchers leading JELF-funded projects held Canada Research Chairs.

FUNDING FROM THE CFI ENABLES INSTITUTIONS TO ATTRACT AND RETAIN RESEARCH TALENT

All CFI Funds can be used to help Canadian institutions enhance their capacity to attract and retain the very best of today’s and tomorrow’s researchers. One of the flagship programs at the CFI, the John R. Evans Leaders Fund (JELF) is the primary strategic investment tool offered by the CFI to achieve this goal. Contributions from this Fund can reach a maximum of \$800,000 from the CFI and up to three candidates may be listed on the proposal when there is a demonstrated need to share infrastructure. The JELF also has a high success rate per competition (approximately 80 percent). For these reasons, JELF is intended as a key incentive to attract and retain individual researchers. Considering this role, the CFI asks institutions to indicate in each JELF proposal whether the infrastructure requested is intended for a new researcher to join the institution (attraction¹) or for an existing faculty member (retention²).

Over the period of 2006–12, there is a shift away from institutions using JELF primarily to attract new researchers, toward using it more commonly to help retain existing faculty³ (Figure 2). Current data for the period of April 2017 to February 2018 shows that the proportion of those attracted or retained through JELF is nearly equal (Figure 3).

Figure 2

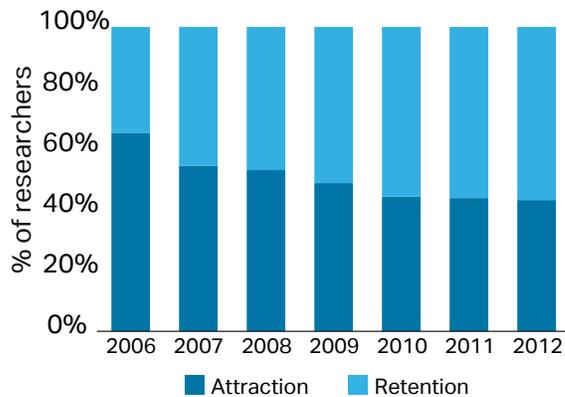
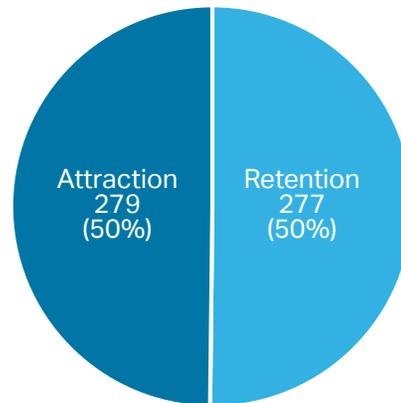


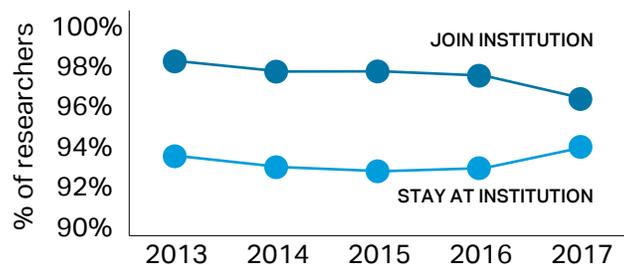
Figure 3



Project progress report data provides additional information about the value of research infrastructure in the attraction and retention of top researchers. In the first year of reporting, researchers leading CFI projects are asked to indicate how important the availability of CFI-funded infrastructure was to their decision to join or remain at their institution.

Over the past five years, there are consistently high percentages of researchers who indicate the infrastructure was important or very important in their decision to join a new institution or remain at their current one (Figure 4).

Figure 4



1 For JELF, attraction is defined as “Within 24 months of the start of the candidate’s full-time academic appointment at the university.”

2 For JELF, retention is defined as “Existing faculty member at the university.”

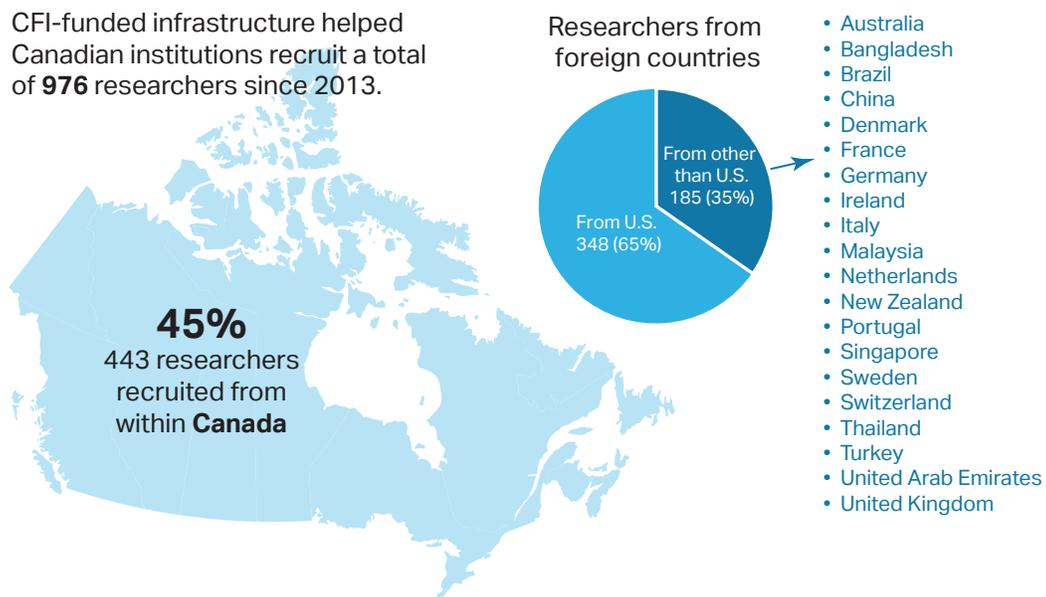
3 The attraction or retention question for JELF proposals was not posed to institutions between 2013 and 2016, but was reinstated in 2017.

CFI INFRASTRUCTURE ENABLES INSTITUTIONS TO RECRUIT RESEARCHERS FROM DIFFERENT COUNTRIES AND DIFFERENT SECTORS

Researchers recruited by country

Project progress report data collected between 2013 and 2017 (**Figure 5**) reveals that CFI-funded infrastructure has helped Canadian institutions recruit a total of 976 researchers. Of those recruited, 533 researchers (55 percent) came from foreign countries, the majority of whom (65 percent) came from the United States. Fifty-one percent of these foreign recruits were Canadian citizens or permanent residents returning to Canada. This suggests that CFI-funded infrastructure provides an incentive for Canadian researchers residing abroad to repatriate to Canada.

Figure 5



The early career researchers who participated in our focus groups confirmed that the competitiveness of offers made by Canadian institutions to early career researchers, particularly in relation to other offers from outside of Canada, rely heavily on the inclusion of a CFI award component.

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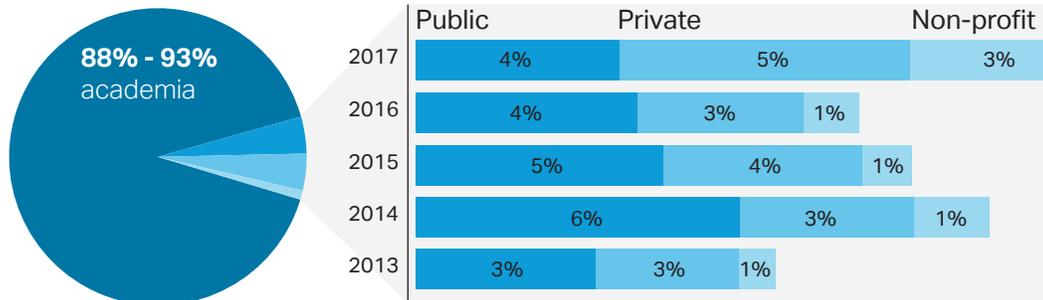
This infrastructure was critical to establish my research program. It weighed enormously in my decision to come back to Canada to establish my own group.

— Andrés Finzi, PhD,
Université de Montréal,
reported in 2013 project progress report

Researchers recruited by sector

CFI-funded infrastructure helps to attract a diverse pool of researchers from different sectors and organizations. Institutions recruit researchers mainly from academic organizations with a small percentage coming from non-academic sectors (**Figure 6**). Over the past five years, project progress report data indicates that among the 976 newly recruited researchers, on average 10 percent were recruited from other public, private and non-profit institutions.

Figure 6



Researchers recruited from non-academic positions with different backgrounds provide diversity of experience to research faculty at Canadian institutions. Researchers' curriculum vitae (CV) submitted as part of CFI proposals provide additional information about the organizations and positions where non-academic researchers were previously employed). The majority of new recruits coming from outside academia held positions related to research and technology development within a variety of organizations around the world (a list of examples of these organizations are found in **Figure 7**).

Figure 7



CFI INFRASTRUCTURE ENABLES INSTITUTIONS TO ATTRACT AND RETAIN RESEARCHERS AT DIFFERENT CAREER STAGES

We sought to understand how researchers named on JELF proposals are distributed by career stage. Possible indicators for career stage include years since PhD, academic position, age, status as an independent researcher (or some combination thereof). For this analysis we have used years since PhD or equivalent as the indicator of career stage for researchers named on JELF proposals as the available data for this indicator was most complete and reliable.

Overall, the majority of researchers named on JELF proposals received their most recent PhD degree or equivalent five to 10 years prior (**Figure 8**). This indicates that a large proportion of researchers named on JELF proposals were at an early stage in their career. When analyzing the profile of those attracted versus those retained, two distinct patterns emerge. In the case of those attracted, nearly 80 percent of individuals fall within 10 years since their last degree, while in proposals related to researcher retention, the years are distributed more broadly, with the majority being more than 10 years since their last degree at the time of their proposals (**Figure 9**). The same patterns and trends were seen when the subset of funded JELF proposals was examined.

Figure 8

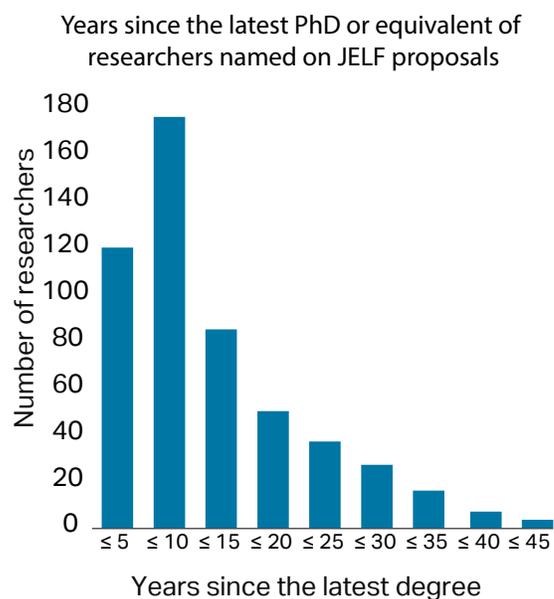
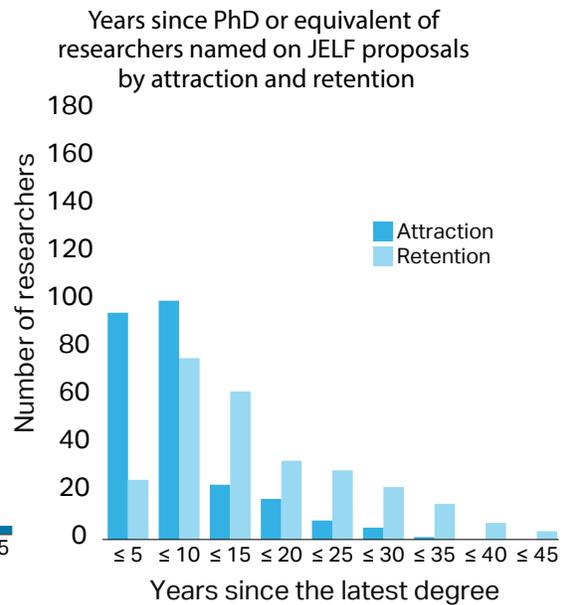


Figure 9



In 2017–18, the CFI conducted [focus group discussions with early career researchers](#) leading CFI-funded research projects as well as interviews with research administrators from four universities across Canada. Many of the research administrators stressed the importance of a CFI award in helping their institution attract and retain researchers at an early career stage: “JELF has been essential for us to attract and retain top talent within the faculties.” It was also noted that JELF helped them improve their competitiveness in recruiting international researchers: “The fact that we have the CFI and have this ability to generate money for infrastructure is a huge advantage for us, especially when we’re competing internationally. When new recruits come in from the U.S., we have the CFI to pay for things that we otherwise couldn’t purchase and that’s a really big advantage for us.”

Many focus group participants noted that the opportunity to apply for CFI funding was included in start-up offers from Canadian institutions, which made them more competitive with international offers and greatly influenced their decision to choose Canada: "I'm Canadian and worked as a researcher in the United States having done my education and post-doctorate there. I received a few offers for academic positions in the U.S. and Canada, and without CFI funding, I would not have returned to Canada, because the offers are not comparable. Starter packages range anywhere from \$300,000 to \$600,000 in the U.S. so by tacking on my CFI allocation⁴, I had a comparable offer from a Canadian institution."

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CFI infrastructure is one of the main reasons that my job offers in Canada were competitive [with those I received] internationally. It remains a critical component of the Canadian early career investigator portfolio.

— Alexander Ensminger, PhD,
University Toronto,
reported in 2016 project progress report

Research administrators also noted that using CFI funding as part of start-up packages can improve their ability to financially support the best early career researchers, particularly those with higher than average start-up package requests: "The range for start-up packages in my department could go from \$200,000 to \$1.2 million. If a new recruit comes in with a start-up request of \$150,000 to \$200,000, we can afford that ourselves. However, if their start-up is approaching a million dollars, then we need to include funding from multiple sources and CFI awards end up becoming a big part of that." Another research administrator noted the irreplaceable value of CFI awards in their recruitment efforts: "The deans are always trying to attract the best people to the faculty, and they realize they have to get them [new recruits] set up with the proper tools and space to do their research. We do not have a significant amount of money being channeled into the faculty and we just don't have a way to replace the CFI funding."

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The John R. Evans Leaders Fund is essential for attracting new researchers to Université de Montréal. The opportunity to apply to the Fund is often mentioned in job offers. We wouldn't be competitive without it.

— Université de Montréal's Bureau Recherche-Développement-Valorisation

⁴ "CFI allocation" refers to the participant's agreement with their institution regarding the amount of CFI funding they would request through a proposal.

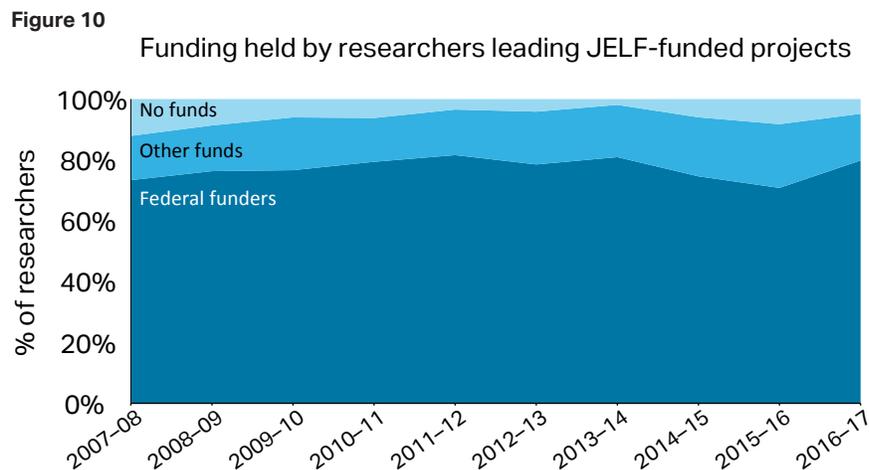
CFI INFRASTRUCTURE ENABLES INSTITUTIONS TO ATTRACT AND RETAIN RESEARCHERS WHO ARE RECOGNIZED AS WORLD-LEADING

There is no universally accepted way to identify researchers who are “world-leading,” particularly across disciplines. As an indicator of world-class excellence, we examined the proportion of researchers leading JELF-funded projects who obtained prestigious and competitive sources of research support, specifically through the three federal funding agencies (the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC)) and Tri-agency funding programs like the Canada Research Chairs program.

Researchers leading JELF-funded projects who receive funding from federal granting agencies

CIHR, NSERC and SSHRC funding programs are an important source of federal research funding for Canadian researchers. In order to be successful, researchers must demonstrate their expertise and track record as well as propose projects with high scientific merit. These funding programs are considered prestigious due in part to their competitive nature with success rates being as low as 15 percent⁵ for some programs.

On average over the past 10 years, almost all researchers leading JELF-funded projects (85 percent) received some form of external funding within two years of their JELF award with 77 percent obtaining funding from one or more of the federal funders (**Figure 10**).



Researchers leading JELF-funded projects who hold Canada Research Chairs

Tri-agency Canada Research Chairs (CRC) program is a prestigious source of federal funding for researcher salary support. It is used by institutions to attract and retain some of the world’s most accomplished and promising minds to Canada. Not only are CRC

⁵ [http://www.sciencereview.ca/eic/site/059.nsf/vwapi/sciencereview_april2017.pdf/\\$file/sciencereview_april2017.pdf](http://www.sciencereview.ca/eic/site/059.nsf/vwapi/sciencereview_april2017.pdf/$file/sciencereview_april2017.pdf)

awards recognized as prestigious, but bibliometric analyses conducted in the context of the last two program evaluations (2010⁶ and 2015⁷) have demonstrated the excellence of award nominees in terms of scientific impact, quality and output. Over the period of 2013–17, 30 to 40 percent of researchers leading JELF-funded projects held Canada Research Chairs.

Success in obtaining federal funding including CRC awards suggests that researchers leading JELF-funded projects are world-leading. Of note, approximately one-quarter of JELF awards are made in partnership with the federal funders including CRC programs. Researchers who have secured funding under such joint programs were included in the analysis.

CONCLUSION

Funding for research infrastructure enhances the ability of Canadian academic institutions to attract and retain world-leading researchers. Most researchers leading JELF-funded projects received external funding within two years of their award and a sizeable proportion in any given year hold Canada Research Chairs. A little over half of new recruits come from outside Canada, one in 10 come from outside academia. Researchers at various career stages are supported, which suggests that CFI funding is used to recruit a diverse pool of talent.

Institutions use the opportunity to apply for CFI infrastructure awards as a key incentive to recruit and retain top researchers and researchers consistently report that CFI-funded infrastructure was important in their decision to come to or remain at their institution. Early career researchers confirmed that the opportunity to apply for CFI funds was important in making their start-up offer from a research institution competitive, particularly against international offers, and that it influenced their decision to join or remain at their institution.

6 http://www.chairs-chaires.gc.ca/about_us-a_notre_sujet/publications/ten_year_evaluation_e.pdf

7 http://www.chairs-chaires.gc.ca/about_us-a_notre_sujet/publications/evaluations/Chairs_Evaluation_Report_E.pdf

ANNEX - METHODOLOGY

Data presented in this report was obtained from the following sources:

1. **John R. Evans Leaders Fund (JELF) proposals:** JELF proposal data was extracted from the CFI Awards Management System (CAMS). In particular, responses to the question in the proposal asking whether the award would be used for attraction or retention were analyzed. It should be noted that such data was unavailable during the period of 2013–16.
2. **Project progress reports (PPR):** The CFI collects data annually from its funded institutions through project progress reports (PPR). Responses pertaining to questions about attraction and retention submitted between 2013 and 2017 were included in the analysis.
3. **CV:** CFI requires researchers named on project proposals to submit their CV through CAMS. The following information was mined and summarized in this report:
 - the countries of recruited researchers when not available through PPR
 - the organizations and positions of researchers leading JELF projects when recruited from non-academic sectors
 - the year of the latest PhD or equivalent degree of JELF applicants
 - funding history of researchers leading JELF projects
4. **Canada Research Chair:** Data on CRC holders was provided by the Tri-agency Institutional Programs Secretariat. Researchers leading CFI-funded projects and who have been awarded a CRC were identified. The proportion of these researchers was calculated through the number of researchers leading JELF-funded projects who accepted or declined a CRC award (including Canada Excellence Research Chair and Canada 150) within the last eight years divided by the total number of researchers who received a JELF award during the fiscal year.
5. **Focus groups and interviews:** Eight focus groups were held with 58 early career researchers who are leading CFI-funded projects from nine institutions across Canada (one participant from an institution participated at a focus group held at a nearby institution). As well, interviews were conducted with 13 research administrators from four institutions that hosted focus groups.

