2012 REPORT ON RESULTS

An analysis of investments in research infrastructure

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ABOUT The Canada Foundation for Innovation

Created by the Government of Canada in 1997, the Canada Foundation for Innovation (CFI) strives to build our nation's capacity to undertake world-class research and technology development to benefit Canadians.

The CFI's national objectives are to enhance the capacity of institutions to:

- support economic growth and job creation, as well as health and environmental quality through innovation;
- carry out important world-class scientific research and technology development;
- expand research and job opportunities by providing support through research infrastructure for the development of highly qualified personnel; and
- promote productive networks and collaboration among Canadian universities, colleges, research hospitals, non-profit research institutions and the private sector.

Since its creation, the CFI has committed more than $5.9 billion in support of 7,879 projects at 138 research institutions in 66 municipalities across Canada (as of May 2013). For more information about the CFI, please visit www.innovation.ca.

THE REPORT ON RESULTS

The purpose of the Report on results is to provide a summary of the outputs and outcomes of CFI-funded infrastructure as they relate to the overall objectives of the CFI, based on information provided through annual Project Progress Reports (PPRs). The PPR is an online questionnaire which is completed by the project leader and submitted by their host institution. Institutions are required to submit a PPR for each funded project by June 30 each year, for up to five years after the award agreement is put in place. The data collected pertains to "the past year" only (CFI fiscal year April 1 to March 31). As data is self-reported, it cannot be independently verified.

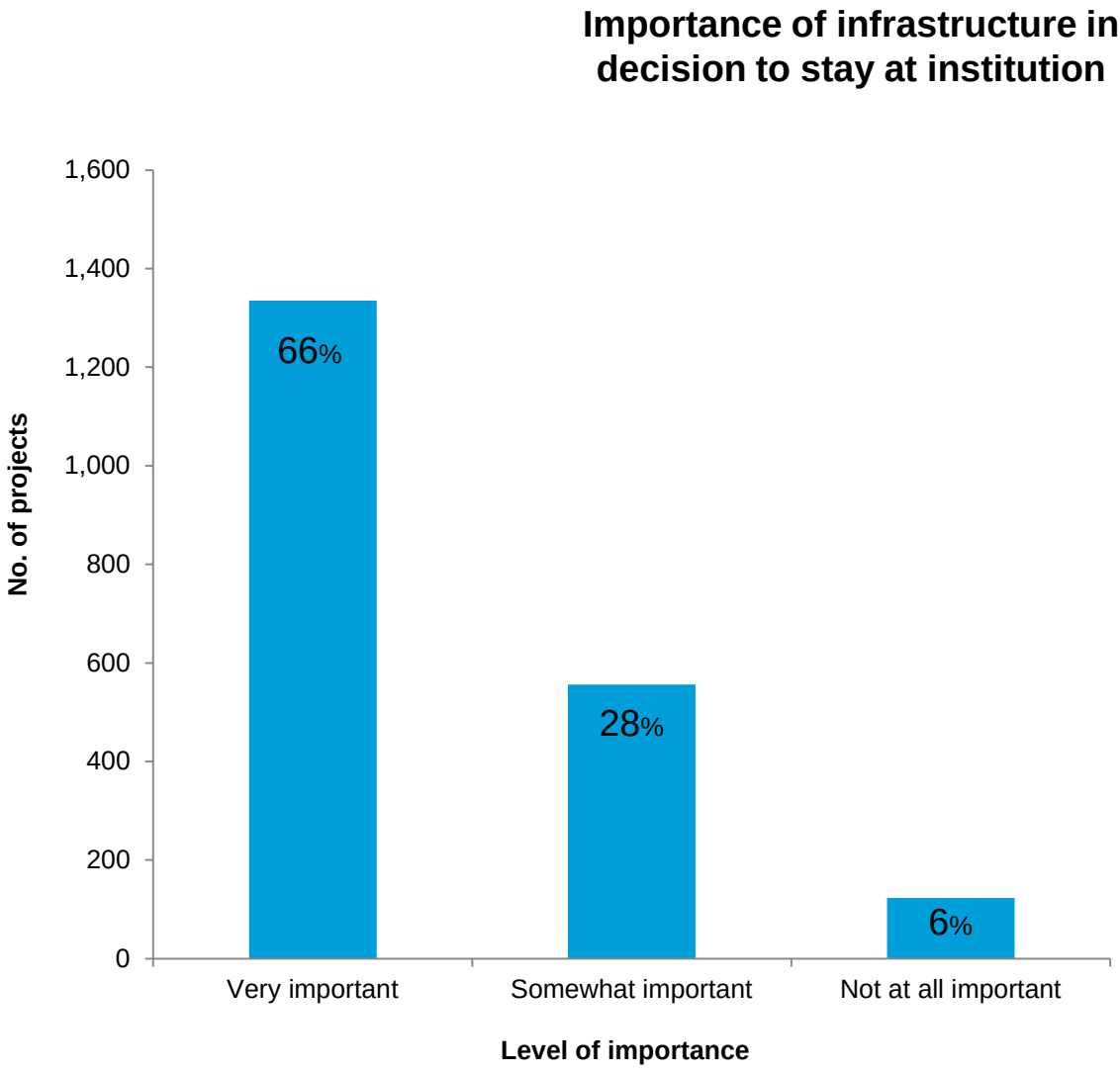
For information on composition of the 2012 PPR sample, see Appendix.

Contents

FIGURE 1

Researcher retention

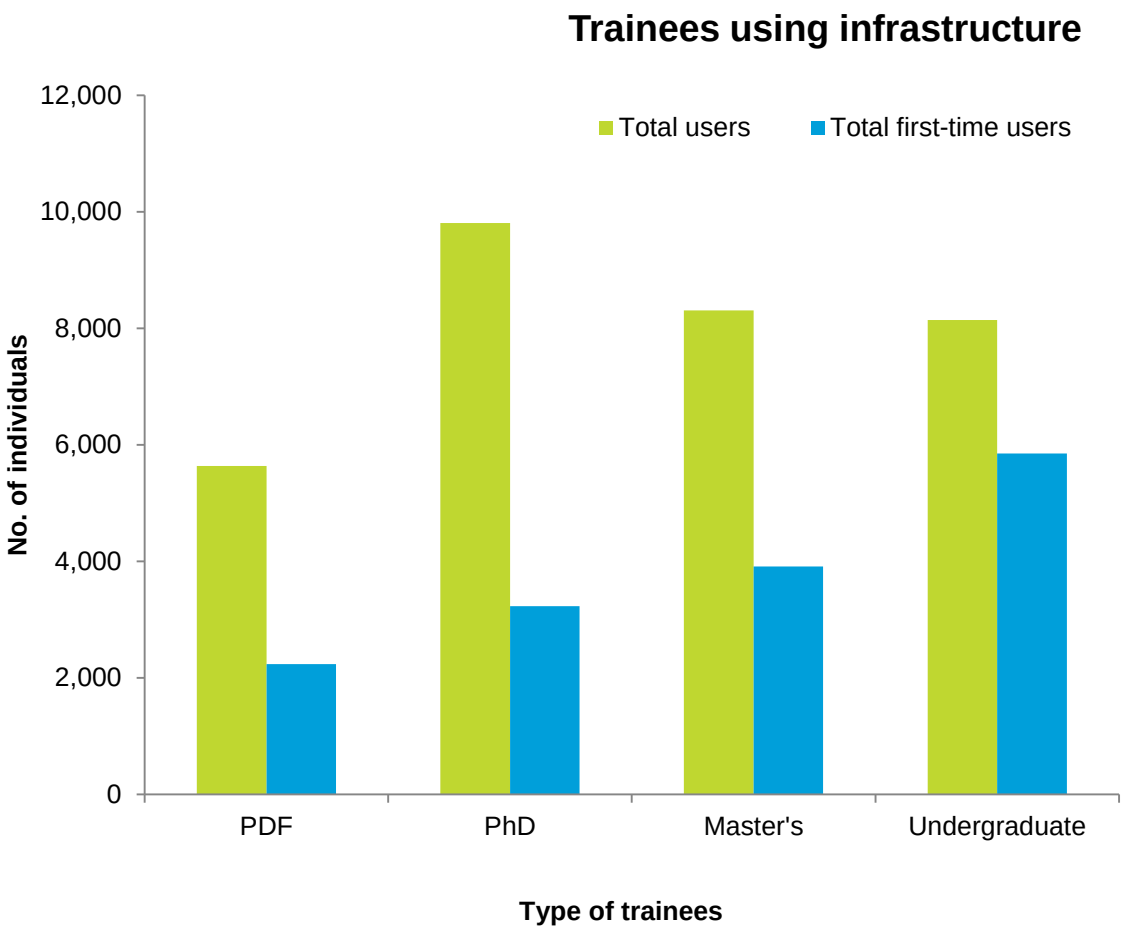
94% of project leaders reported that **infrastructure was important for retaining some of Canada's best researchers.**



HQP using infrastructure

FIGURE 2

96% (1,998) of project leaders reported that CFI-funded infrastructure **was a key resource for trainees.**

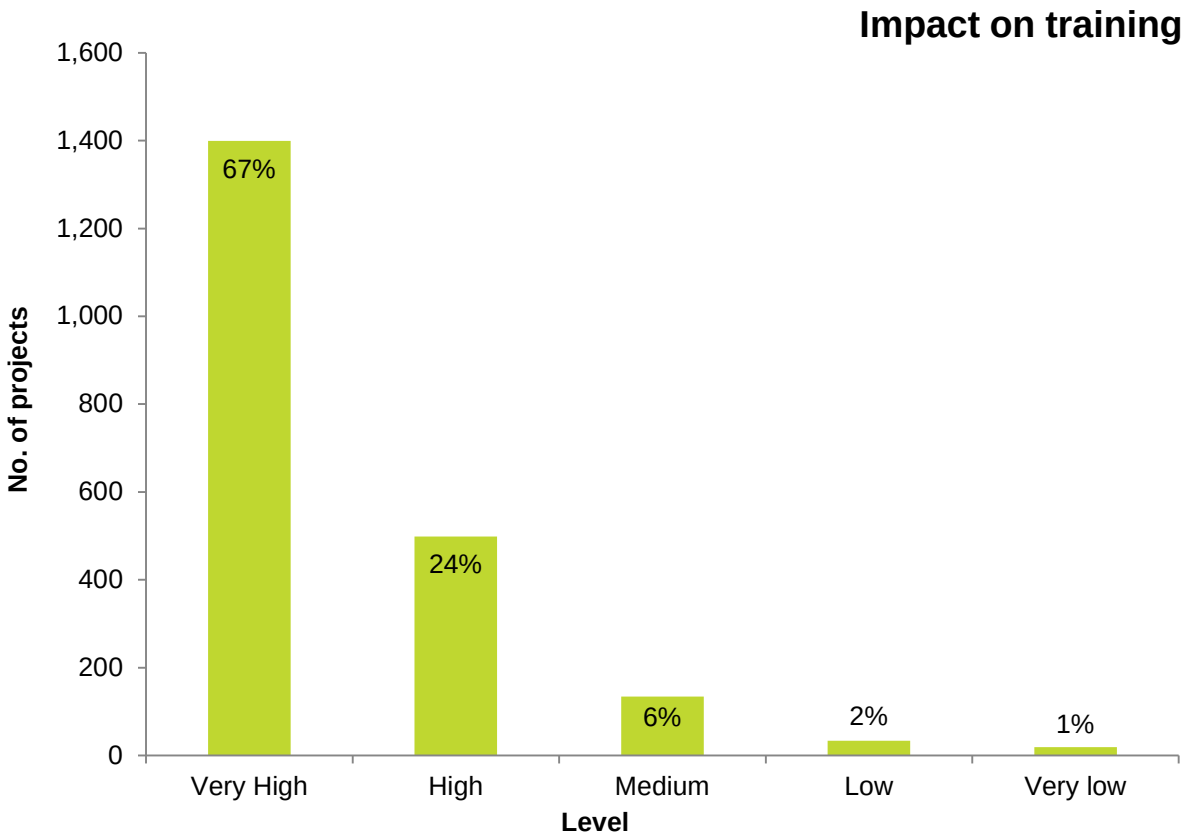


31,900 post-doctoral fellows (PDFs) and higher education students had **the opportunity to expand their research skills using infrastructure**. On average, 48% of them were first-time users.

FIGURE 3

Impact on training

91% of project leaders credited their infrastructure with having **a high or very high impact on the quality of the training environment.**



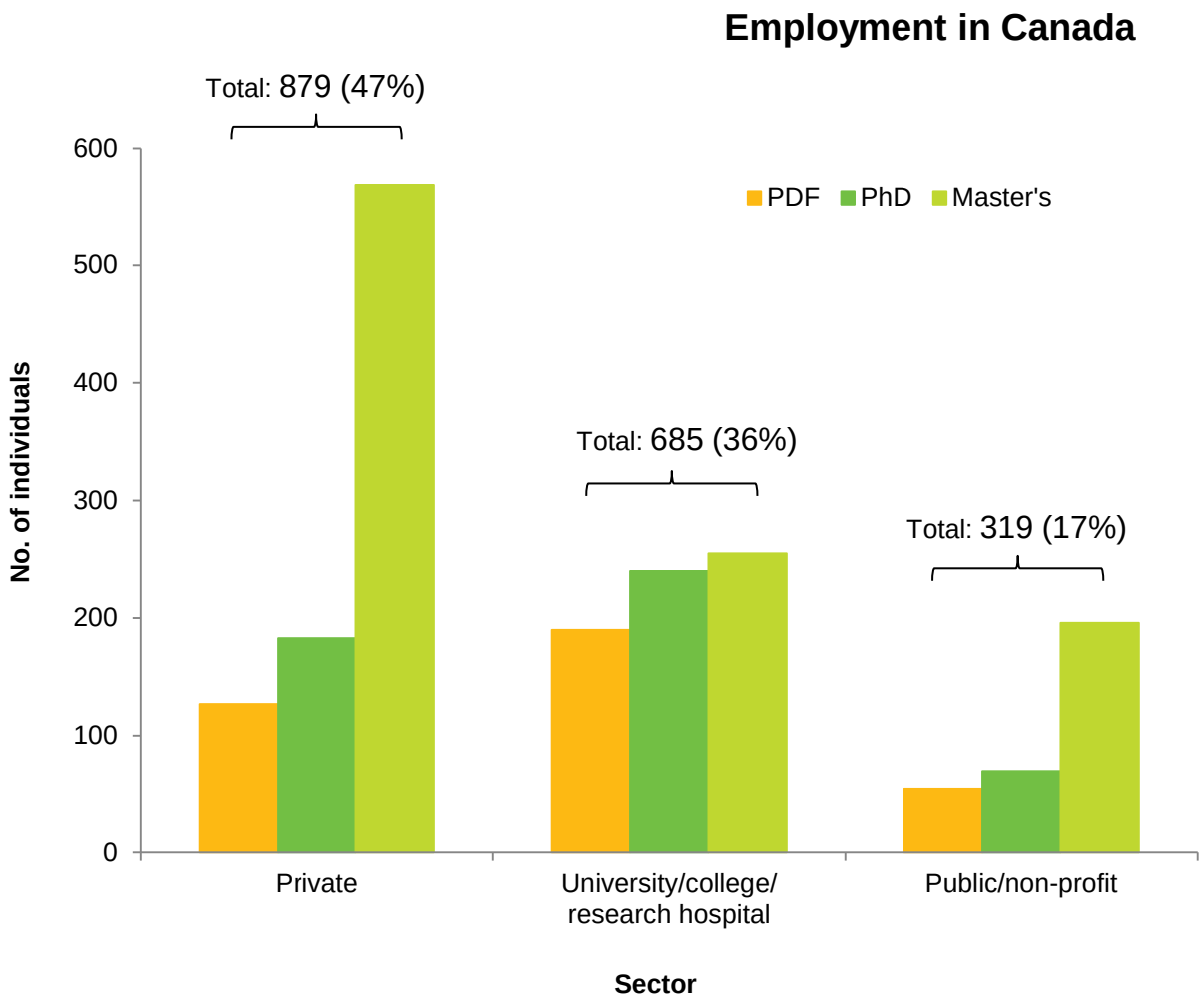
Technical personnel

48% (1,007) of project leaders reported that technical personnel **trained for the first time on the use and maintenance of the infrastructure**, for a total of 3,994 individuals.

FIGURE 4

HQP employment

Highly qualified personnel who have trained on CFI-funded infrastructure **support economic growth in Canada**.

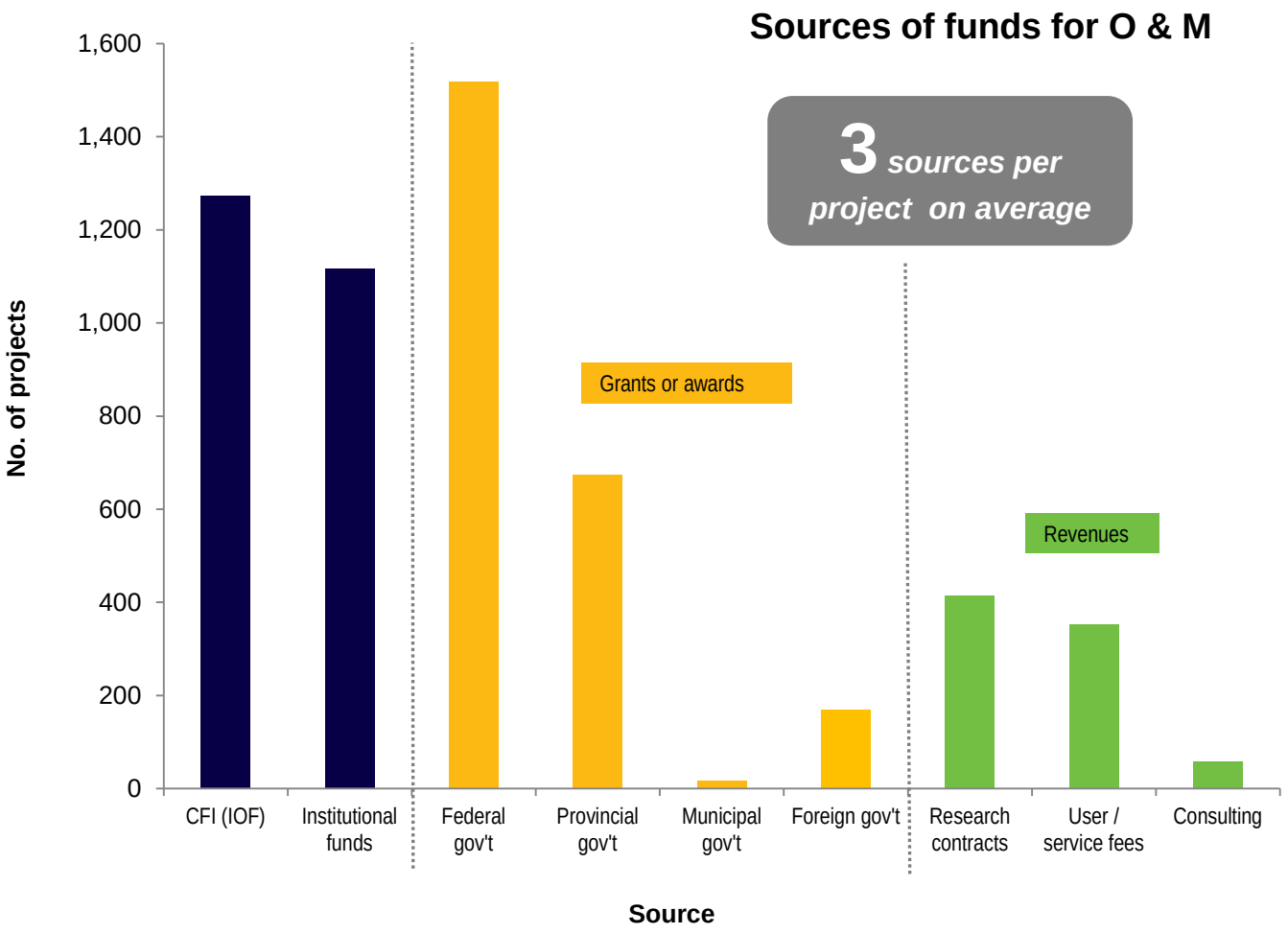


2,395 PDFs and graduate students using the infrastructure last year **completed their training** and moved into the workforce. Among them, **a large proportion (71%; (1,883)) stayed in Canada**, while the remaining 29% were reported as working abroad.

FIGURE 5

Operations & maintenance

82% of project leaders reported that they had both **adequate financial and human resources** for the operation and maintenance (O & M) of the infrastructure. **Use of diverse funding sources,** including research contracts and user fees, contributes to the sustainability of the infrastructure.

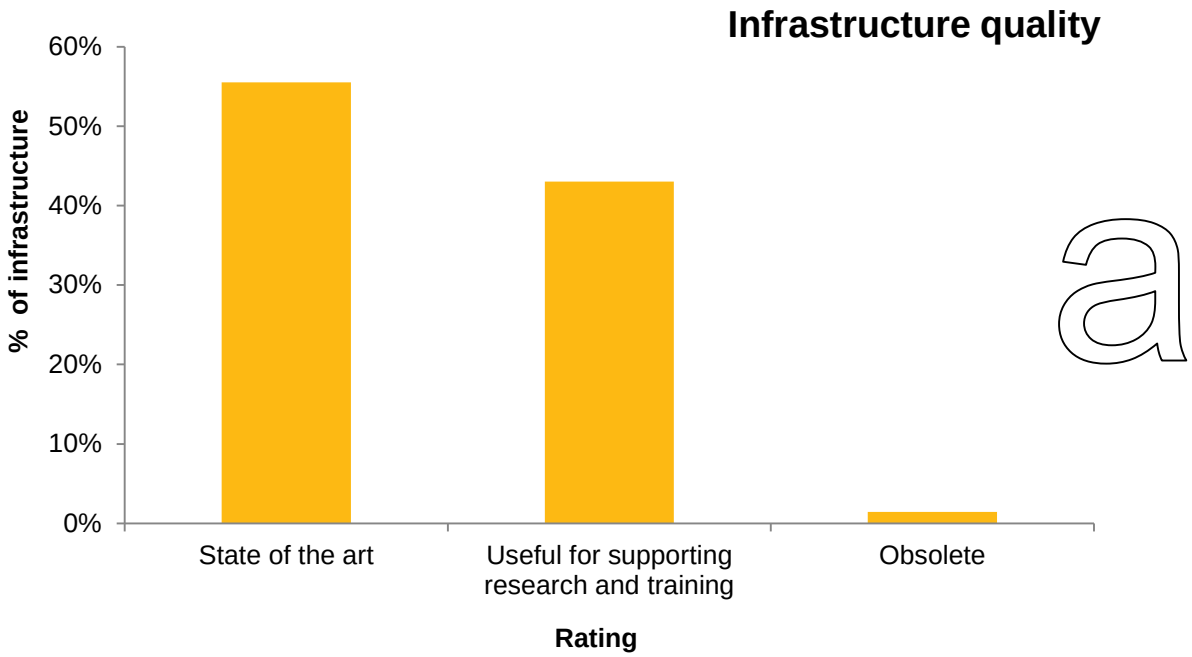


Federal government grants and awards are most commonly used to support O & M, followed by the Infrastructure Operating Fund (IOF) from the CFI, funds from the researcher's institution, and provincial government grants or awards.

Infrastructure quality & life expectancy

FIGURES 6a & b

More than half of project leaders **rated their CFI-funded infrastructure as "State-of-the-art"**, including 82% of those with highly specialized research equipment.



a

The **remaining** years of useful life of infrastructure reported **varies according to its type**.

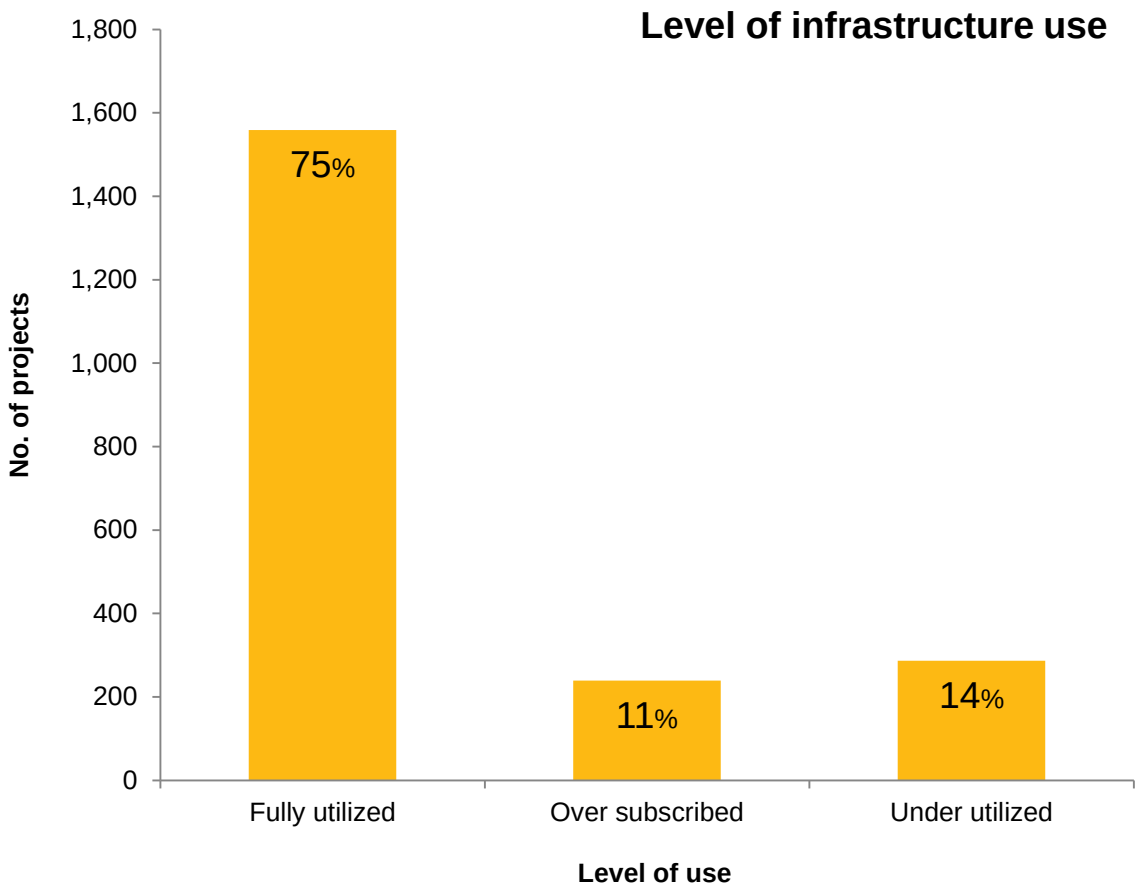
b

Type	Number of years of useful life remaining (average)
Building(s)	18.8
Research space	13.8
Non-specialized or standard research equipment	7.7
Highly specialized research equipment	7.4
Computing hardware or software	3.5

FIGURE 7

Infrastructure use

86% of the infrastructure **was being fully utilized or over subscribed**, suggesting that it is appropriately located and contributing to research capacity.



Research productivity

FIGURE 8

As expected in an academic setting, **conferences, symposiums and workshop presentations** were the most frequently reported research outputs by project leaders, closely followed by **peer-reviewed publications**.

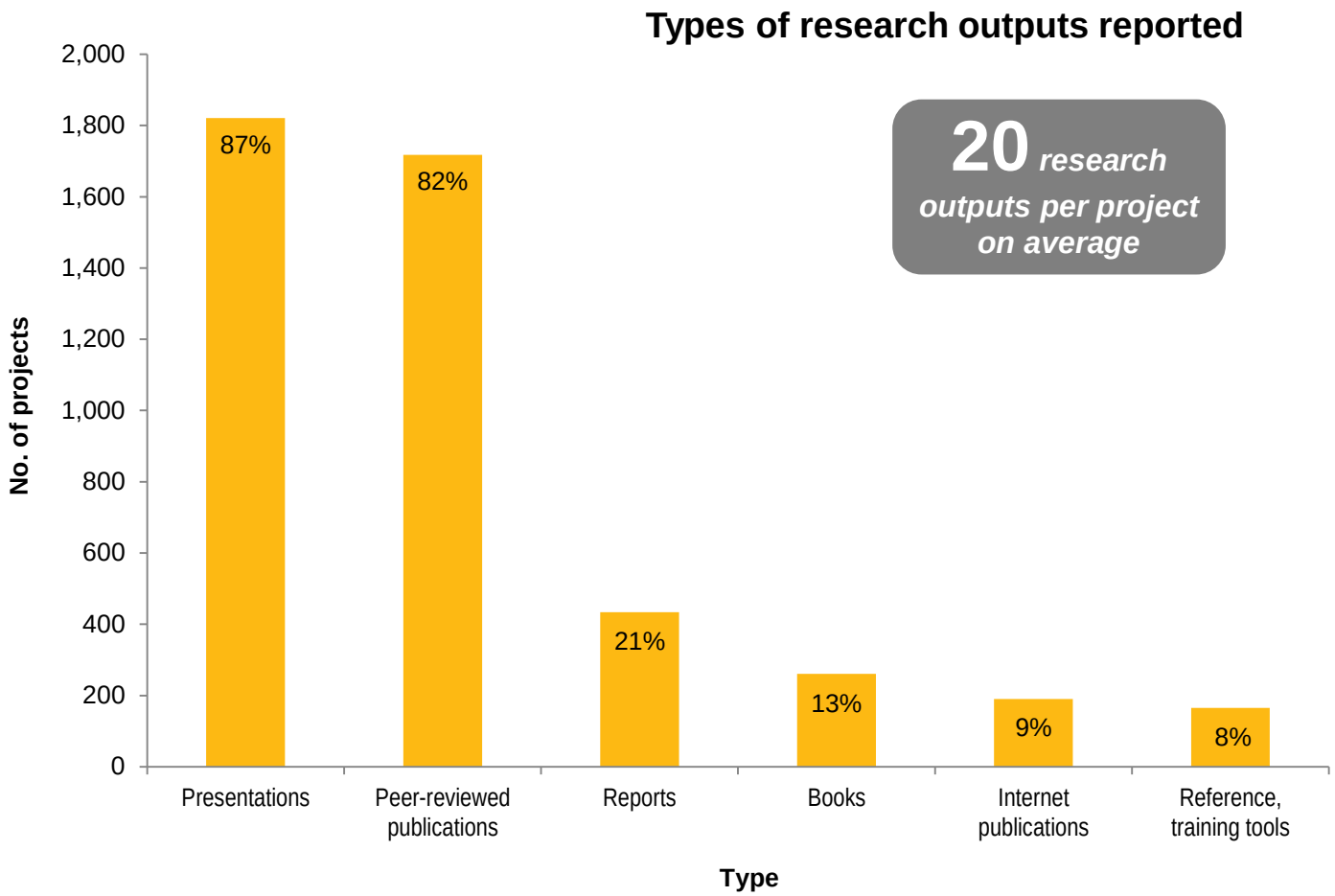
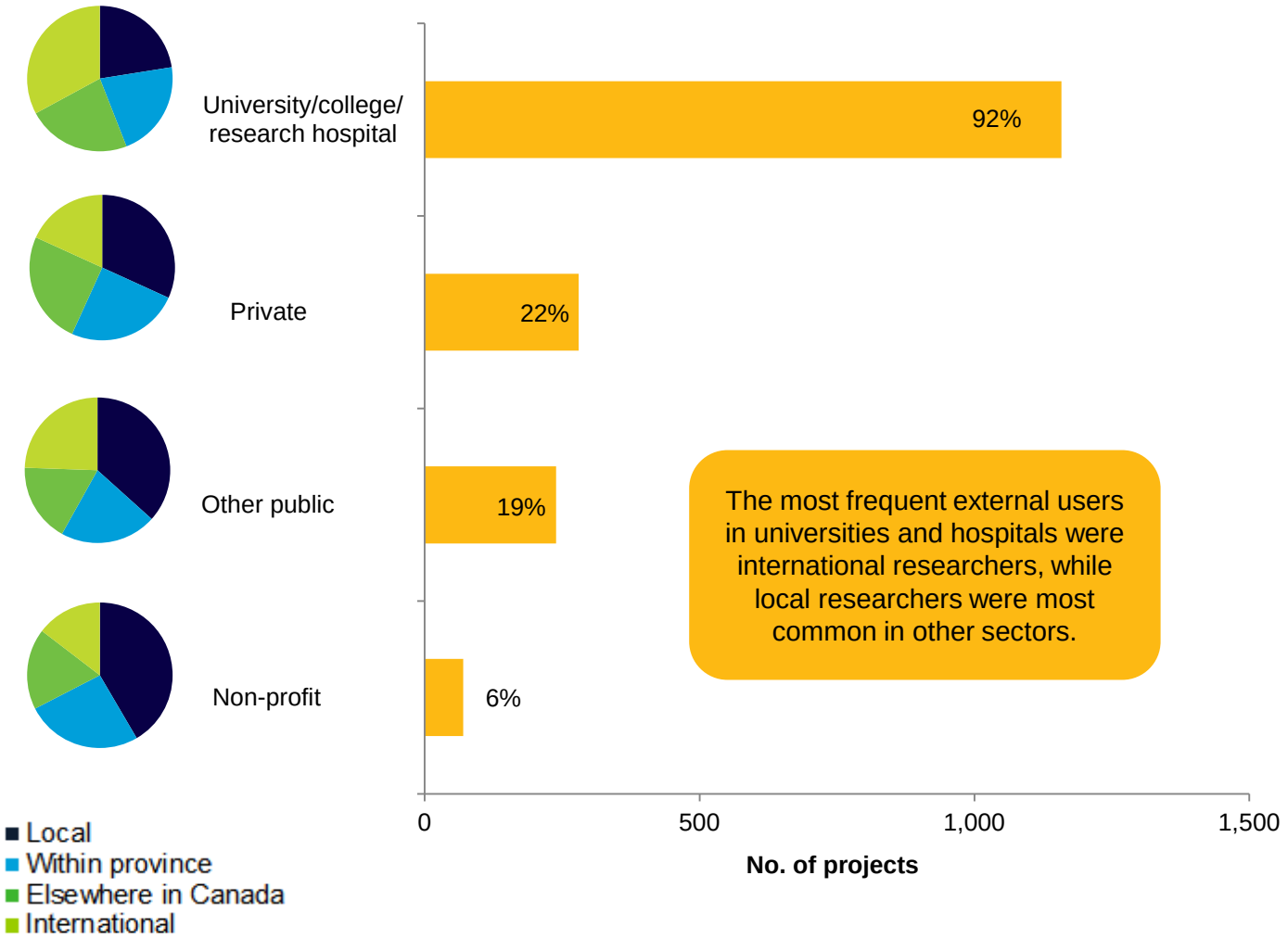


FIGURE 9

Advancing research

Infrastructure was used by **a diverse community of public, private and non-profit sector users**.

External users of infrastructure by location and sector



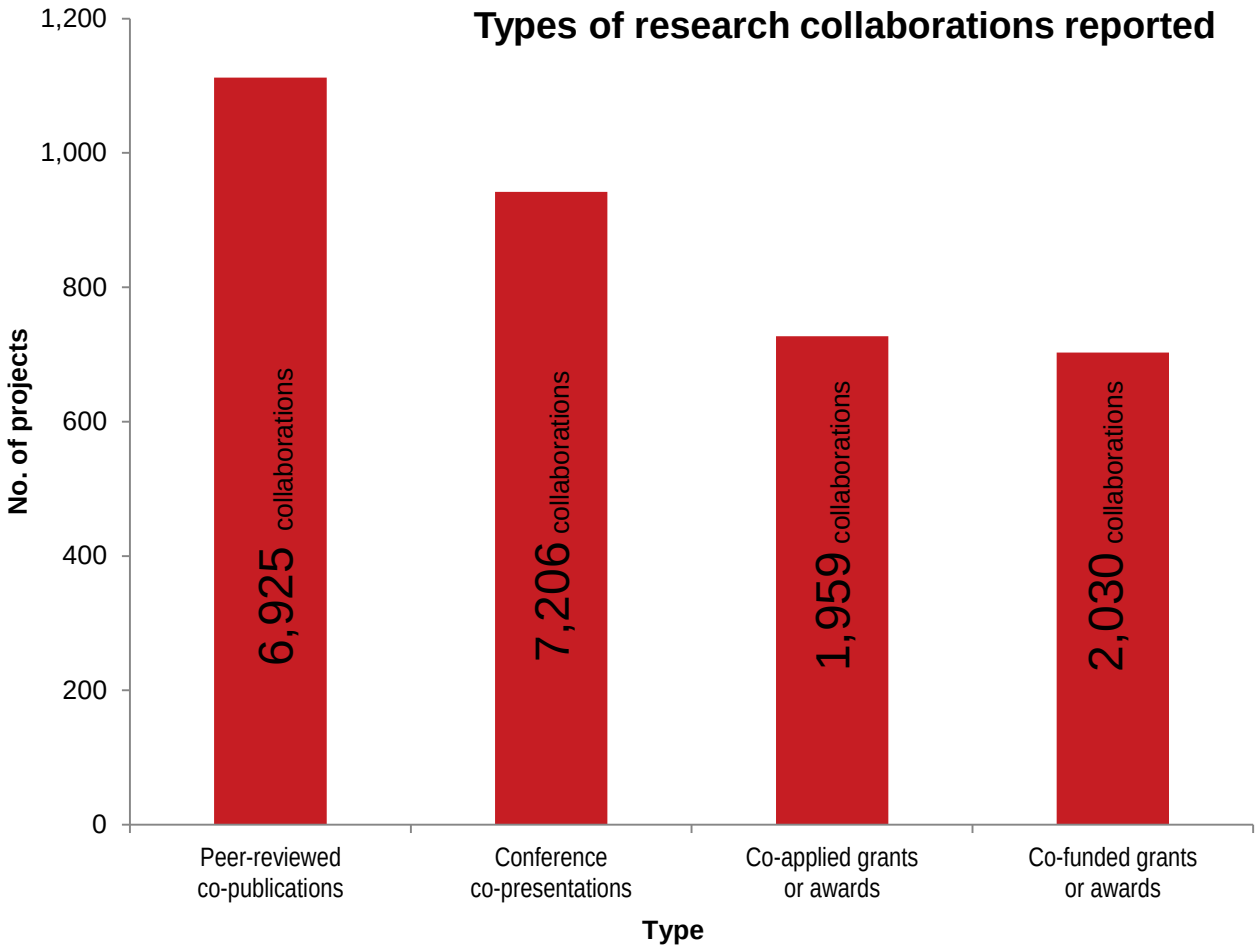
Internal users
84% of project leaders reported at least one researcher at their institution using the infrastructure to advance their research, for a total of 11,152 internal users.

External users
60% of project leaders reported users outside their institution, for a total of 24,822 external users.

Research collaborations

FIGURE 10

Researchers have made **use of infrastructure to serve collaborative research endeavours** for traditional academic activities and outputs such as funding applications and publications.

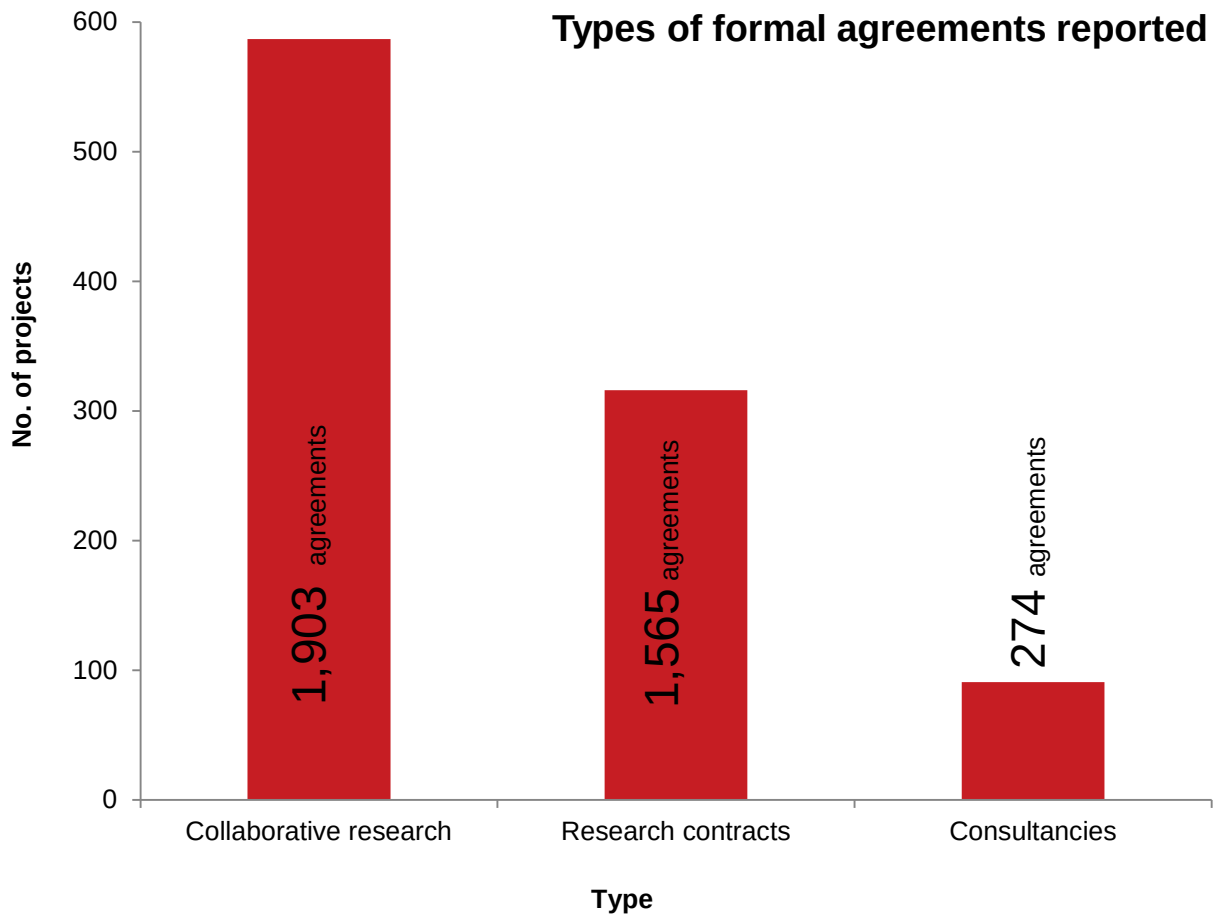


69% (1,433) of project leaders reported at least one type of external collaboration. Of those, 37% (533) of project leaders reported four different types of collaboration, suggesting CFI-funded infrastructure enables widespread collaboration.

FIGURE 11

Research agreements

CFI-funded infrastructure **facilitated formal collaborative research agreements**. Project leaders reported a total of 3,742 agreements.



A subset of collaborations are formalized through **signed agreements** such as contracts and memorandums of understanding (MOUs). 34% (715) of project leaders reported one or more types of formal agreements.

From research to innovation

FIGURE 12

CFI-funded infrastructure has contributed to the **development of new technologies and the creation of new companies**.

239 provisional patents

67 patents

29 spin-off companies

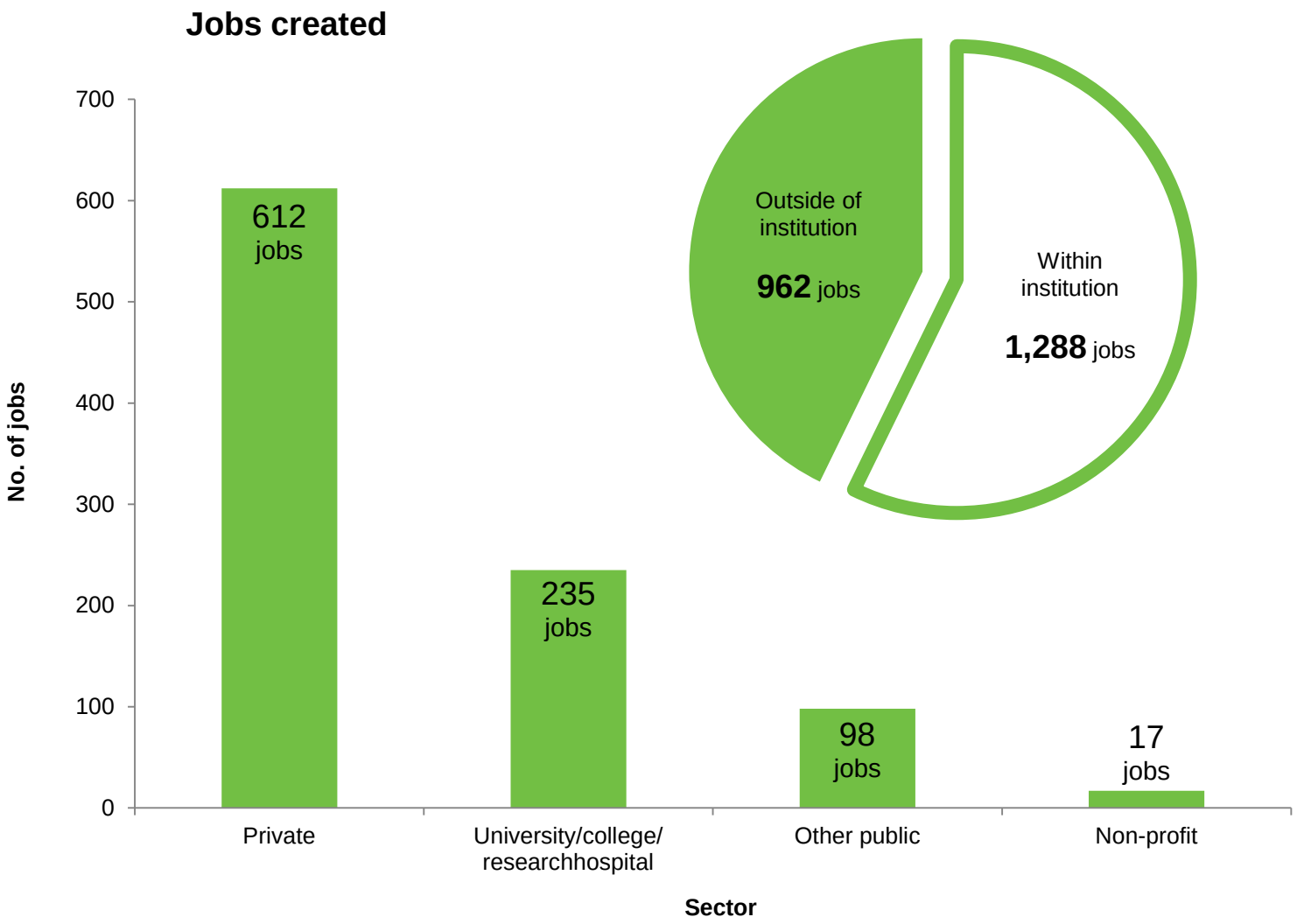
172 project leaders reported that **intellectual property rights** were granted in relation to CFI-funded infrastructure.

52 project leaders reported entering into **licensing agreements** based on intellectual property enabled by the CFI-funded infrastructure.

FIGURE 13

New jobs

28% (577) of project leaders reported **one or more jobs created** due to the CFI-funded infrastructure.

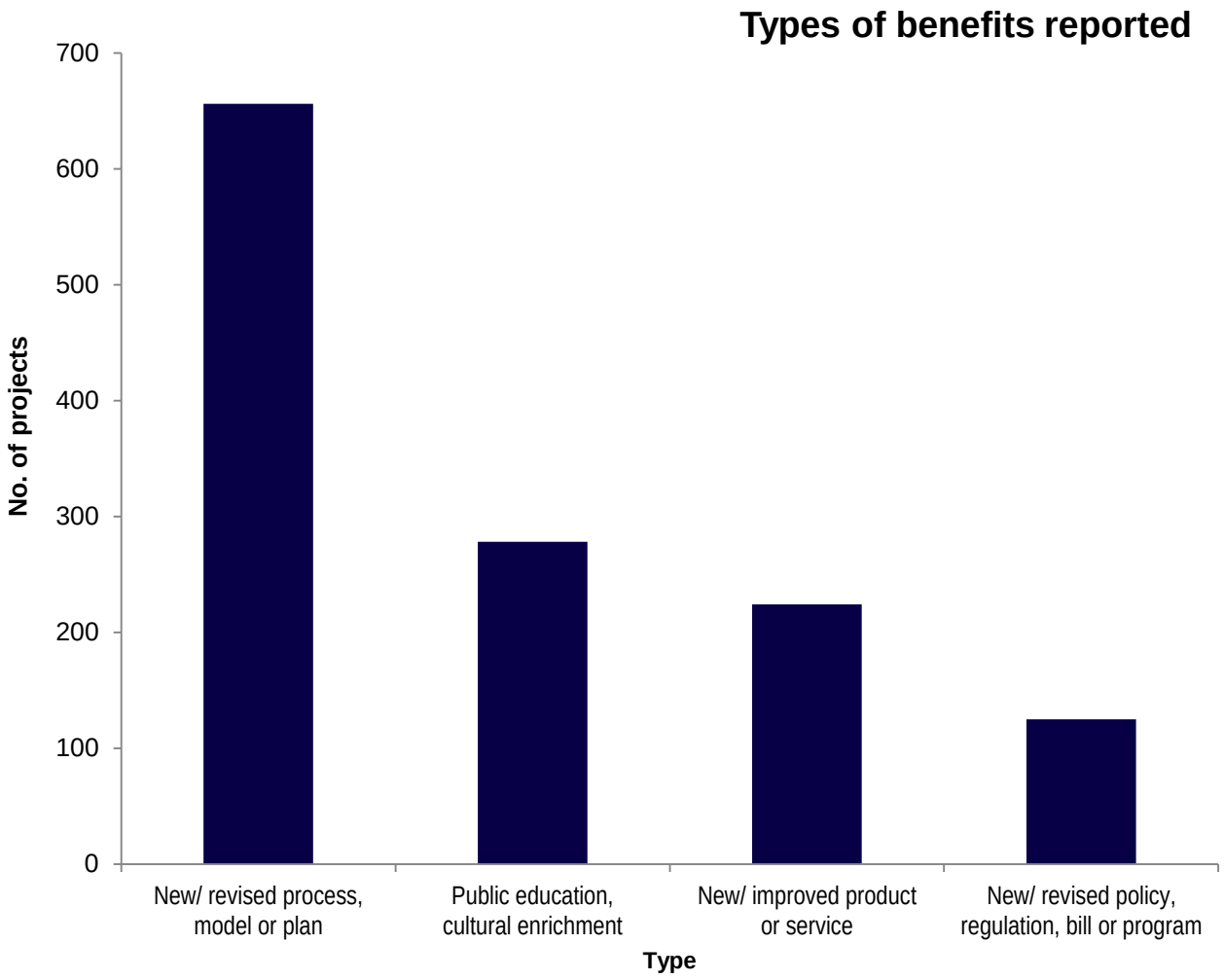


The majority of these jobs (1,288) were staff hired for the use, operation and maintenance of CFI-funded infrastructure. As a result of research related to the infrastructure, 123 project leaders reported that **a total of 962 new jobs were created outside the institution**.

FIGURE 14

A range of benefits

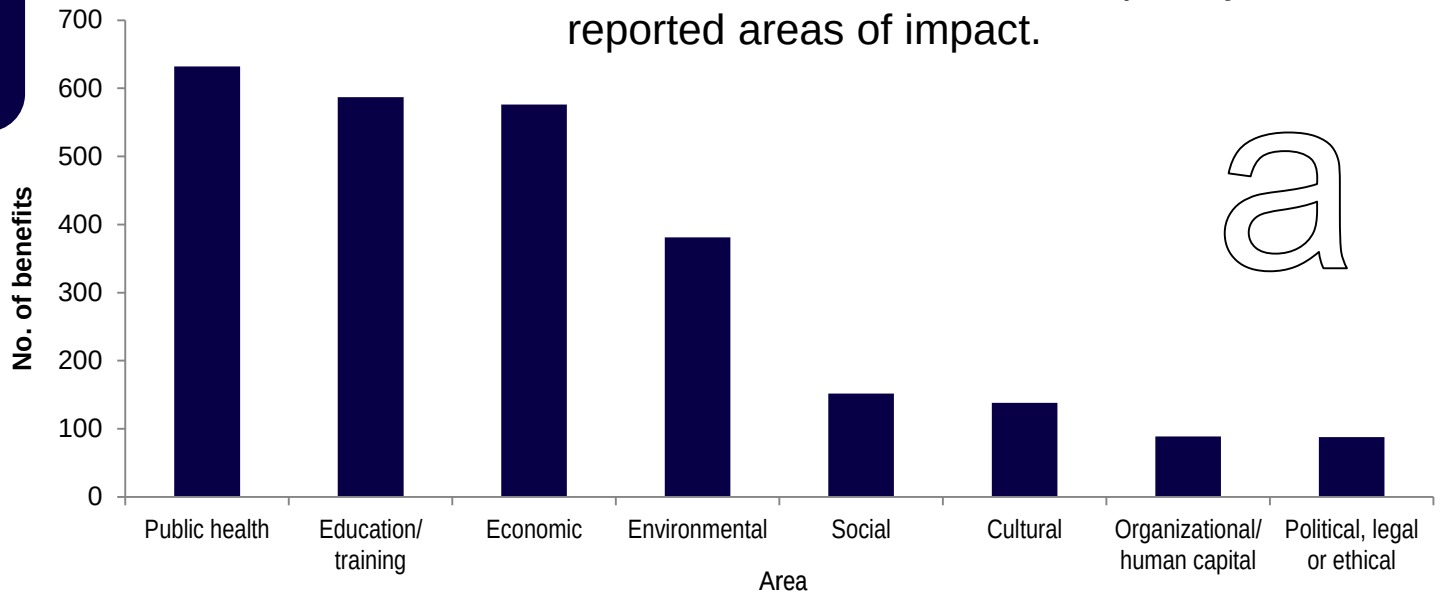
45% (944) of project leaders reported at least one type of benefit, highlighting the role of **CFI-funded infrastructure in enabling research that produces outcomes for Canadians**.



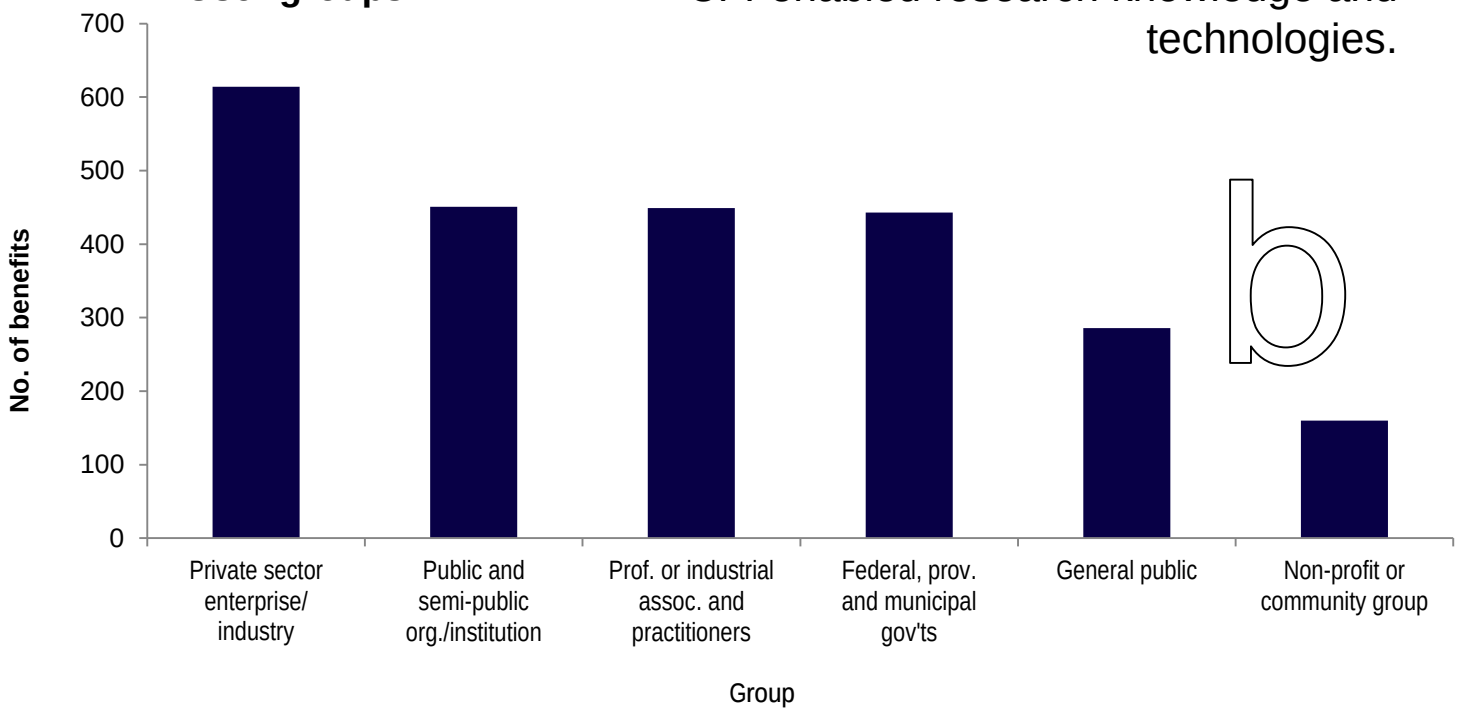
FIGURES 15a & b

Benefits: Areas of impact and user groups

Public health, education, training and economic were the most frequently reported areas of impact.



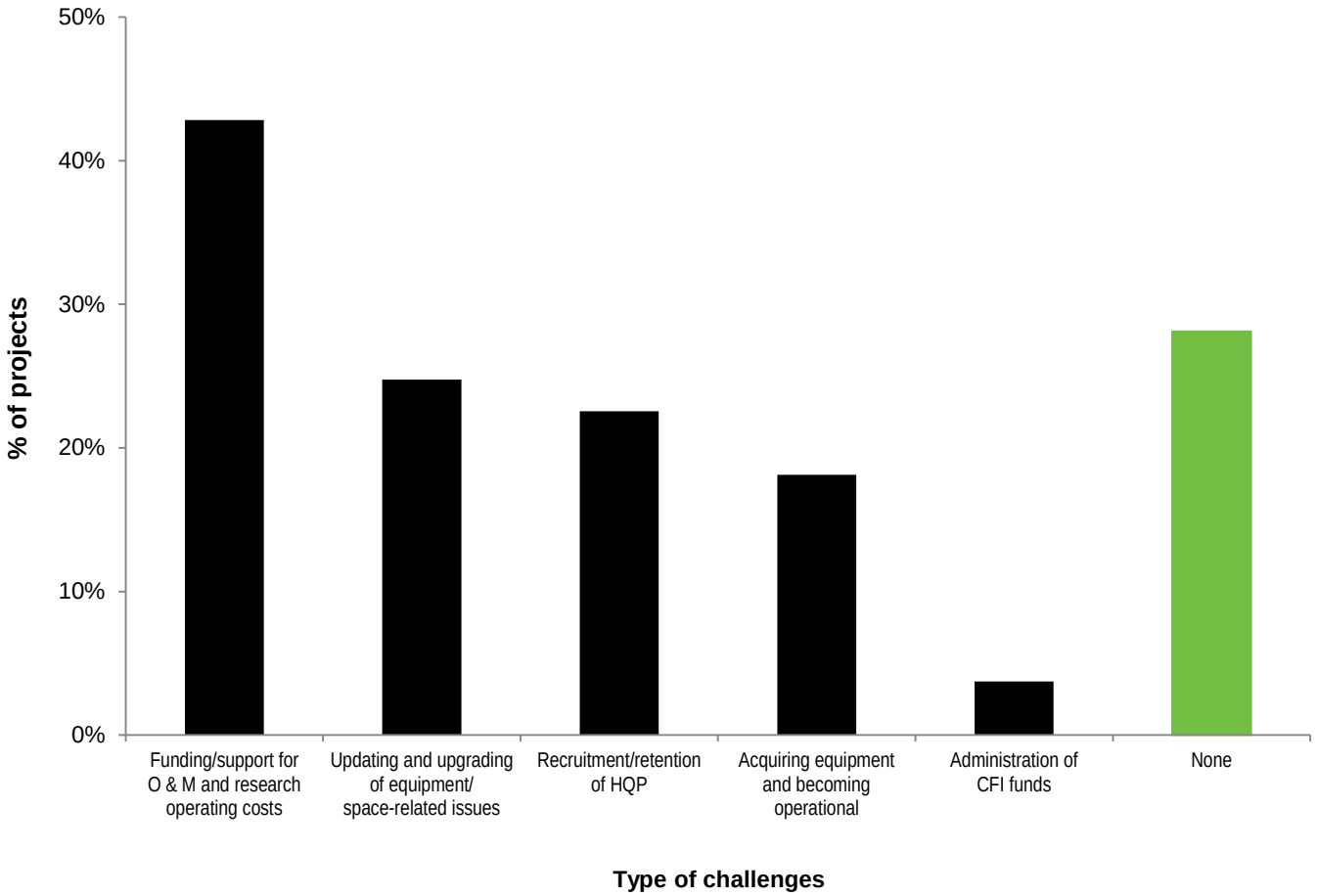
Industry is the primary beneficiary of CFI-enabled research knowledge and technologies.



Challenges

FIGURE 16

The most frequently mentioned challenge by project leaders was **funding for O & M and research operating costs**.



Although issues related to HQP and the acquisition and updating of equipment were also identified as important challenges, 28% (586) of project leaders reported that they had **no significant limiting factors** in conducting their research.

APPENDIX

Composition of the 2012 PPR sample

This report is based on a sample of 2,085 operational projects from 79 universities, colleges, research hospitals and non-profit research institutions across Canada reporting on the 2011-2012 fiscal year (data extracted as of August 2012) . This includes projects reporting in any year of the CFI reporting cycle, representing a range of projects from recently funded to more mature projects. A total of 116 projects were excluded as their CFI-funded infrastructure had either not yet been obtained or not yet put into service. Together, these represent 97% of the 2,265 total expected reports for the year. This report is based on quantitative data provided. Responses labelled as "other" have not been included in the analysis.

Unit: thousand $

Reporting year	2		3		4		5		Total	
Number (#) and $ contributions Types of CFI Funds	#	$	#	$	#	$	#	$	#	$
Leaders Opportunity Fund *	461	79,856	503	77,892	465	72,887	405	61,991	1,834	292,626
Leading Edge Fund 2006/2009	37	131,746	8	30,159	11	55,717	21	51,701	77	269,324
New Initiatives Fund 2006/2009	31	115,707	9	25,884	8	43,160	23	67,246	71	251,997
Canada Research Chairs Infrastructure Fund	1	182	5	1,199	15	2,205	41	5,446	62	9,032
New Opportunities Fund			4	1,131	4	795	14	2,313	22	4,240
Innovation Fund	1	4,477			1	2,252	2	7,508	4	14,237
Other **	1	4,038	9	328,081	2	48,324	3	31,649	15	412,092
Total	532	336,006	538	464,346	506	225,340	509	227,855	2,085	1,253,547

*** Leaders Opportunity Fund (LOF) includes:**
- LOF - under $1M
- LOF - $1M to $2M
- LOF - Canada Research Chairs (CRC)
- LOF - NSERC, Industrial Research Chairs
- LOF - CIHR, Programmatic Grants in Food and Health

**** Other includes:**
- Research Hospital Fund 2004
- Research Hospital Fund - Large Scale Institutional Endeavours (RHF-LSIE)
- Research Hospital Fund - Regional/National Clinical Research Initiatives (RHF-CRI)
- Exceptional Opportunities Fund
- International Joint Venture Project 2005
- National Platforms Fund

Note: In 2012, no projects were reporting in Year 1 due to a change in the CFI's reporting rules. For details, refer to section 7.3 of the Program and Policy Guide.

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