



University
of Windsor

Annual Report on Research Activities

2020-21

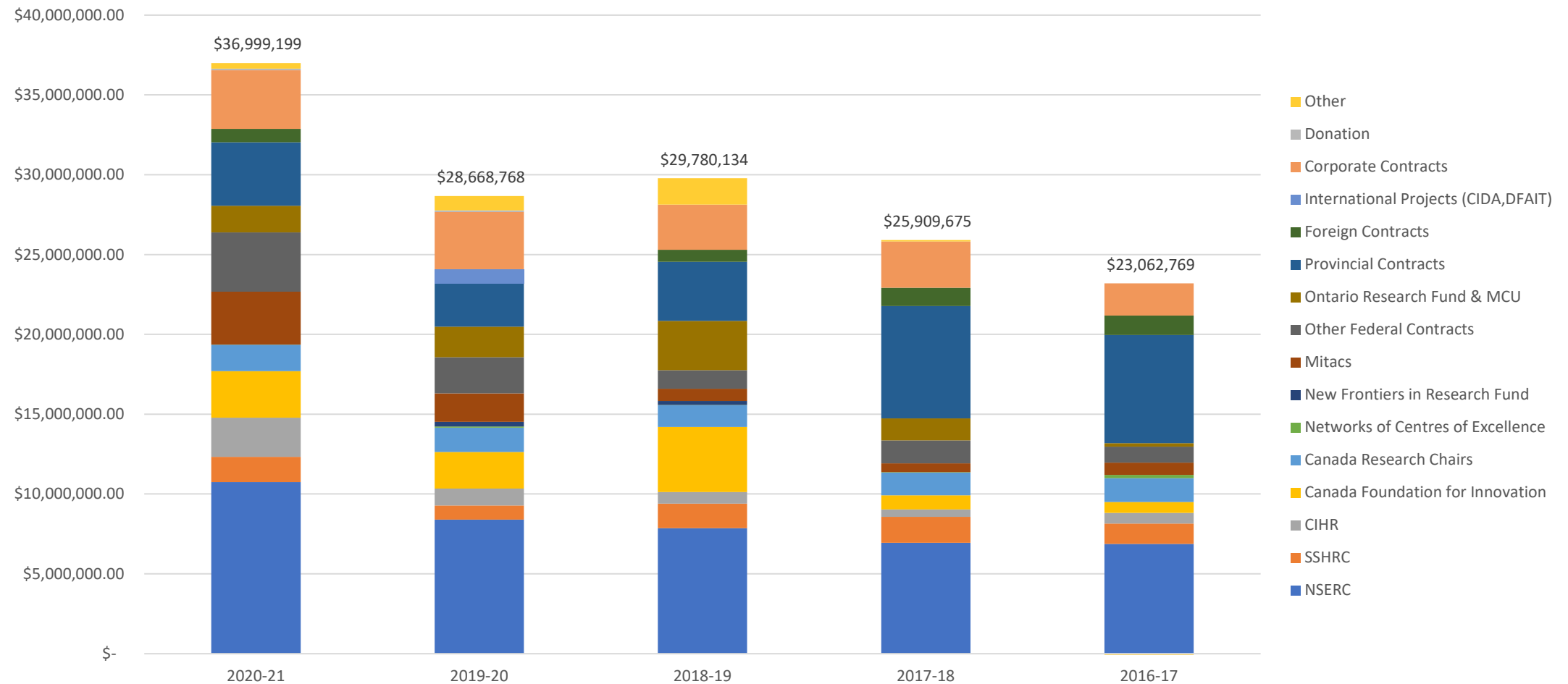


Research Revenues 2020-21

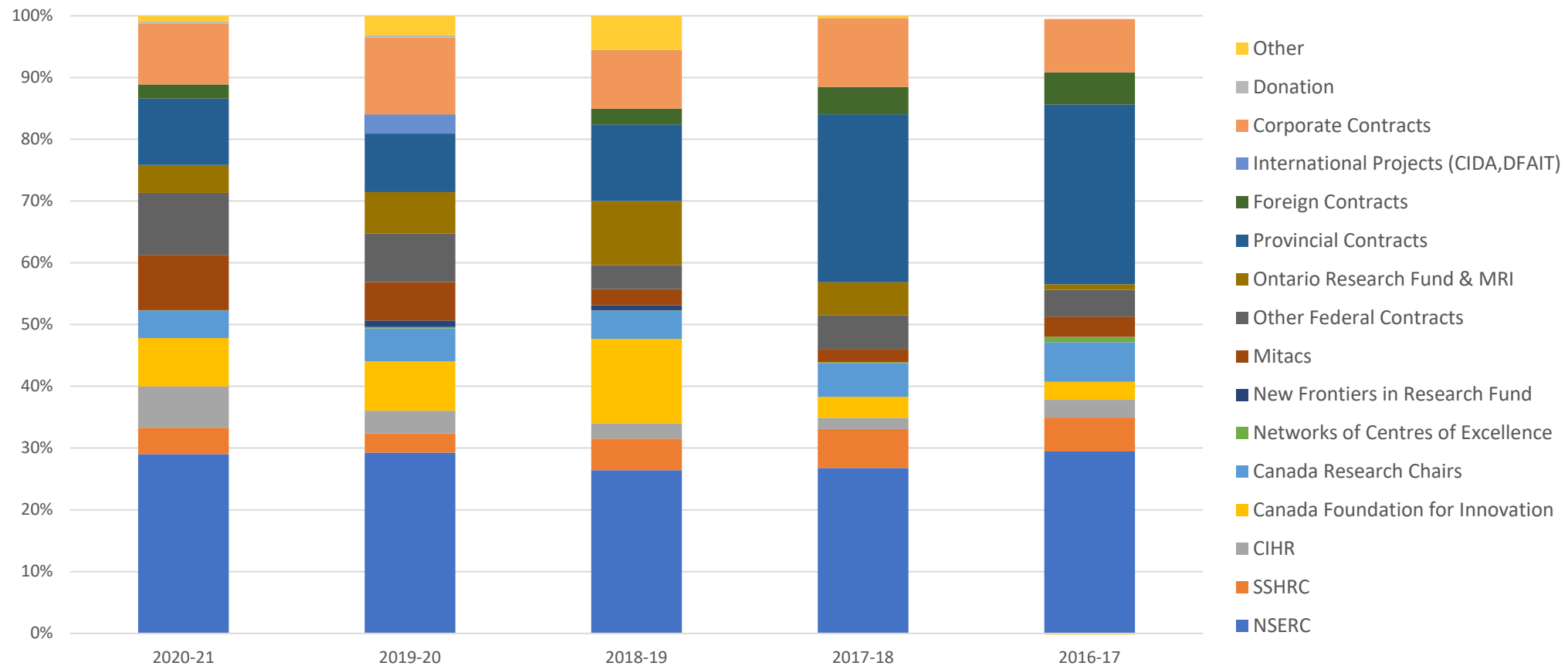
UWindsor Research Revenue: 5-year summary

Funding type	2020-21	2019-20	2018-19	2017-18	2016-17
Federal					
Tri-Council Funding					
NSERC	\$ 10,738,473	\$ 8,391,299	\$ 7,861,581	\$ 6,940,025	\$ 6,872,159
SSHRC	\$ 1,583,210	\$ 887,796	\$ 1,528,492	\$ 1,632,303	\$ 1,275,803
CIHR	\$ 2,462,588	\$ 1,058,362	\$ 736,093	\$ 464,647	\$ 666,046
Total Tri-Council Funding	\$ 14,784,272	\$ 10,337,457	\$ 10,126,166	\$ 9,036,975	\$ 8,814,009
Other Federal Funding					
Canada Foundation for Innovation	\$ 2,908,178	\$ 2,295,612	\$ 4,071,837	\$ 886,682	\$ 678,590
Canada Research Chairs	\$ 1,640,000	\$ 1,521,260	\$ 1,360,000	\$ 1,411,523	\$ 1,500,000
Networks of Centres of Excellence	\$ 20,000	\$ 69,500	\$ 14,400	\$ 33,146	\$ 205,613
New Frontiers in Research Fund	\$ 10,080	\$ 296,619	\$ 250,000		
Mitacs	\$ 3,312,516	\$ 1,782,067	\$ 767,472	\$ 558,216	\$ 762,018
Other Federal Contracts	\$ 3,708,915	\$ 2,265,945	\$ 1,168,269	\$ 1,428,494	\$ 1,005,750
Total Federal Funding	\$ 26,383,961	\$ 18,568,460	\$ 17,758,144	\$ 13,355,035	\$ 12,965,980
Provincial					
Ontario Research Fund & MCU	\$ 1,678,201	\$ 1,906,906	\$ 3,081,932	\$ 1,374,059	\$ 216,427
Provincial Contracts	\$ 3,974,257	\$ 2,725,420	\$ 3,699,563	\$ 7,039,102	\$ 6,781,082
Total Provincial Funding	\$ 5,652,458	\$ 4,632,326	\$ 6,781,495	\$ 8,413,162	\$ 6,997,509
International					
Foreign Contracts	\$ 843,878		\$ 757,789	\$ 1,156,684	\$ 1,216,208
International Projects (CIDA,DFAIT)	\$ -	\$ 883,896			
Total International Funding	\$ 843,878	\$ 883,896	\$ 757,789	\$ 1,156,684	\$ 1,216,208
Other					
Corporate Contracts	\$ 3,659,183	\$ 3,576,345	\$ 2,837,797	\$ 2,890,916	\$ 2,009,776
Donation	\$ 100,000	\$ 100,000			
Other	\$ 359,720	\$ 907,741	\$ 1,644,909	\$ 93,878	-\$ 126,703
Total Other External Funding Sources	\$ 4,118,903	\$ 4,584,086	\$ 4,482,706	\$ 2,984,794	\$ 1,883,072
Total External Research Grant Revenue	\$ 36,999,199	\$ 28,668,768	\$ 29,780,134	\$ 25,909,675	\$ 23,062,769

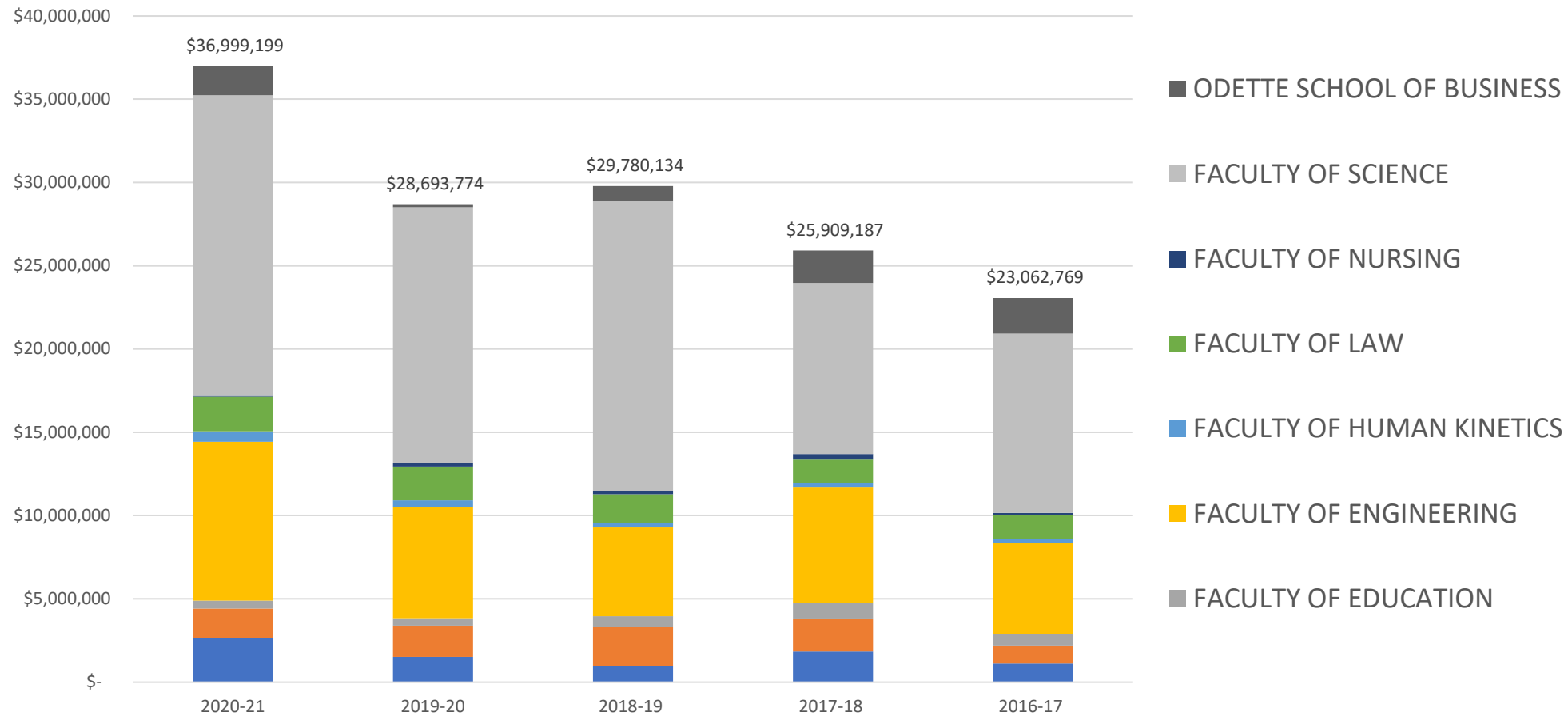
Research revenue by source: 5-year trend



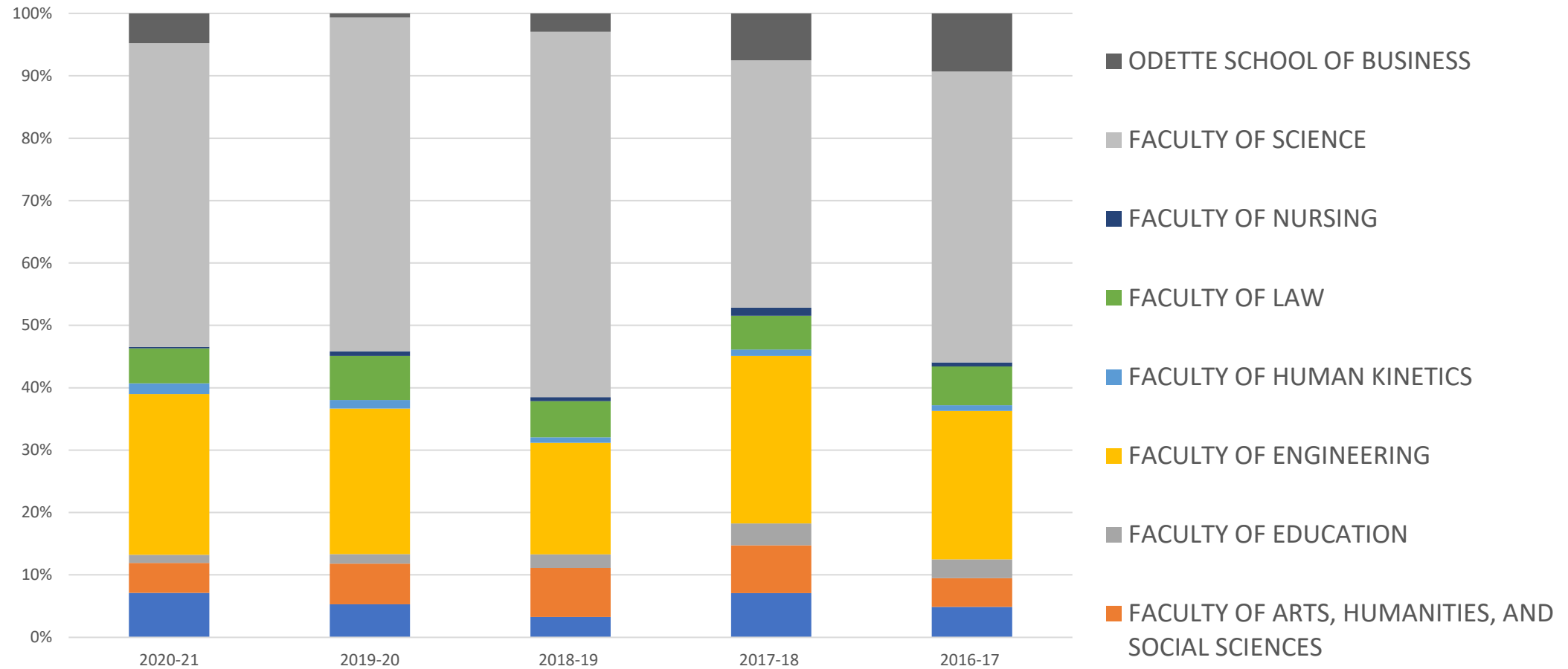
% Research revenue by source: 5-year trend



Research revenue by Faculty: 5-year trend



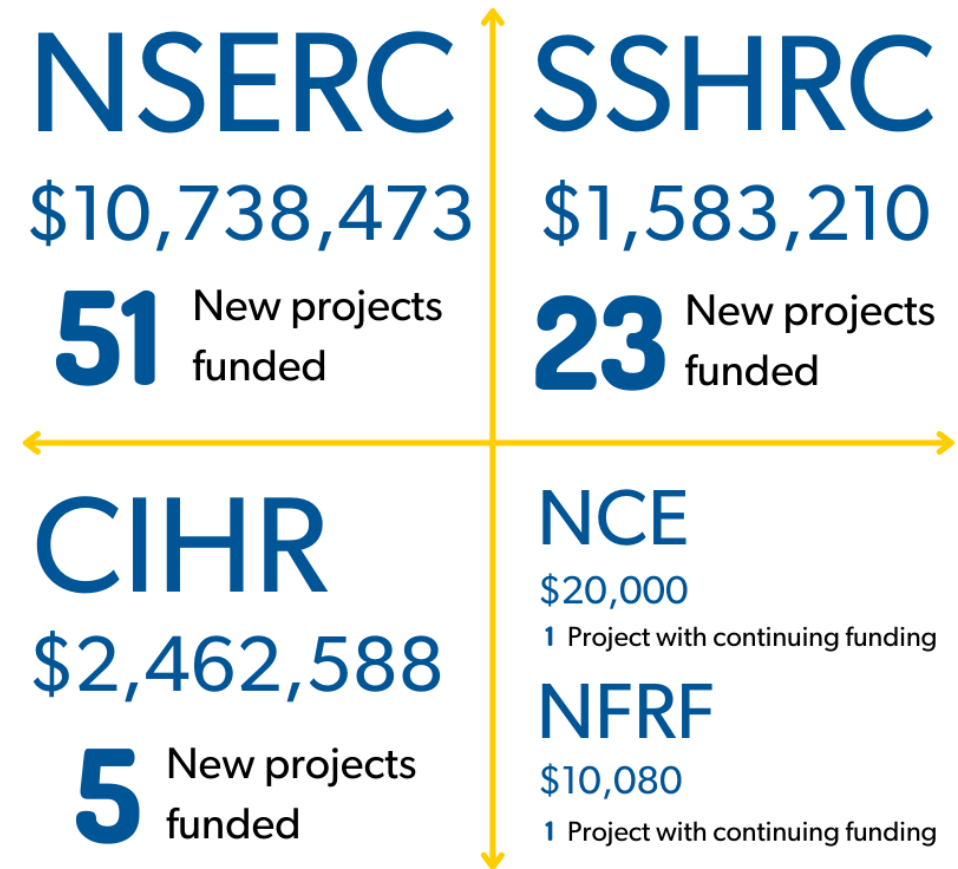
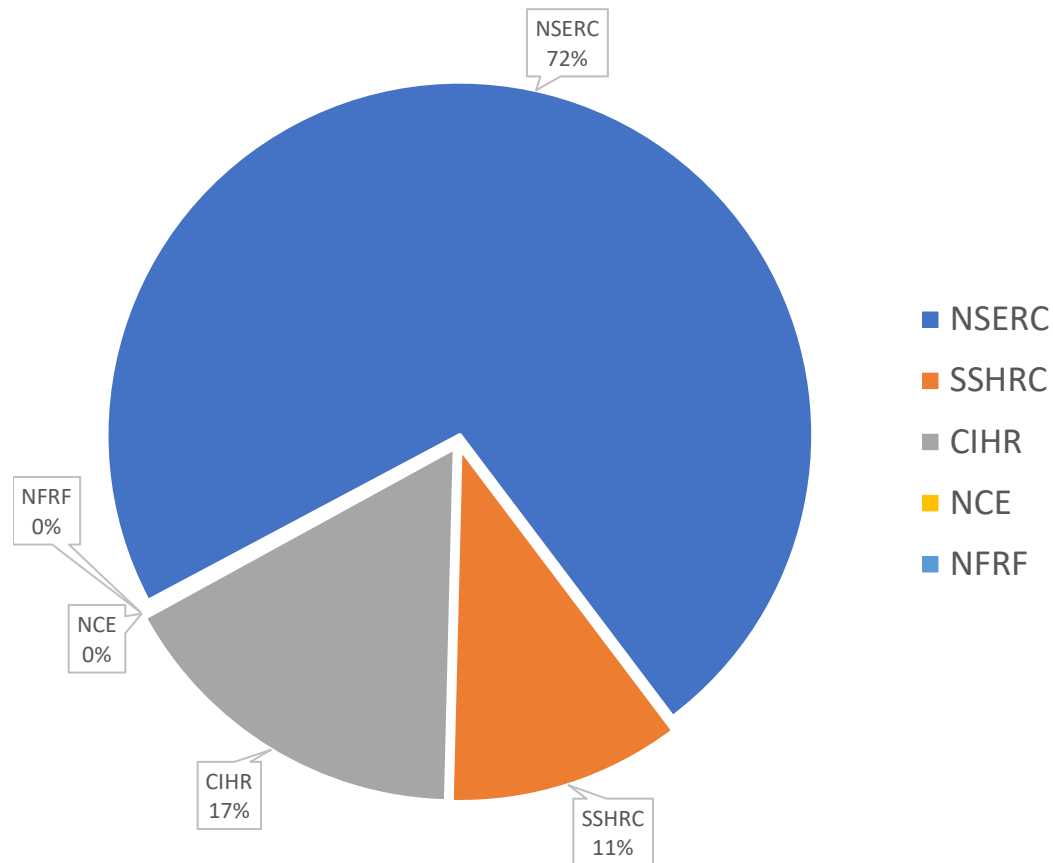
% Research revenue by Faculty: 5-year trend



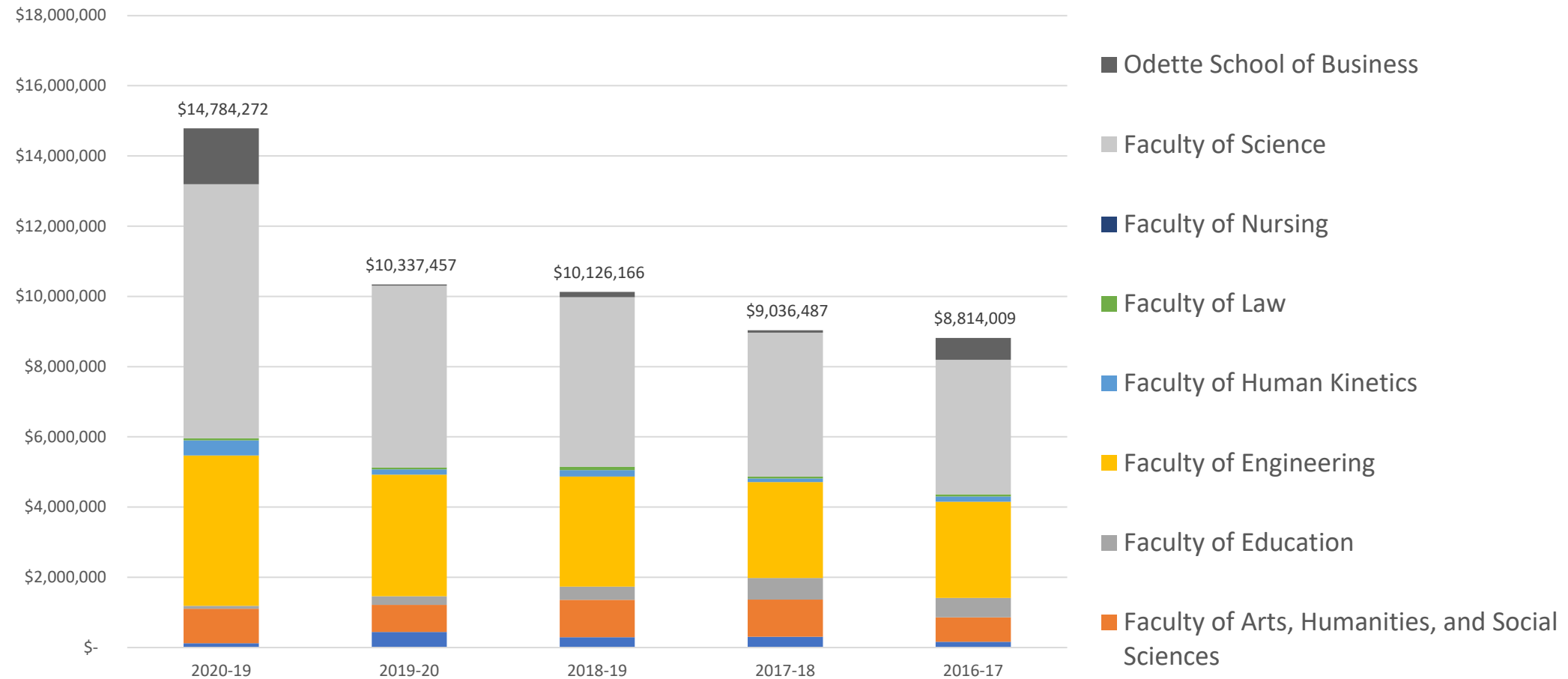


Tri-Agency Funding

Tri-Agency revenue breakdown: 2020-21



% Tri-Agency revenue by Faculty: 2020-21



NSERC New Funding Snapshot: 2020-21



106 Submissions to Natural Sciences and Engineering Research Council programs

27
Discovery grant applications

37
Alliance grant Applications

16
RTI applications

26
Applications to other NSERC programs

51 Successfully funded projects

48%
Success Rate

\$9,580,923
Funds awarded from NSERC programs (new awards in 2020-21, value over the life of the grant)

SSHRC New Funding Snapshot: 2020-21



47

Submissions to Social Sciences and Humanities Research Council programs

12

Insight Development applications

12

Partnership Engage Applications

9

Postdoctoral Fellowship applications

14

Applications to other SSHRC programs

23

Successfully funded projects

49%

Success Rate

\$1,275,495

Funds awarded from SSHRC programs (new awards in 2020-21, value over the life of the grant)

CIHR New Funding Snapshot: 2020-21



23 Submissions to Canadian Institutes of Health Research programs

10
Operating
Grant
applications



7
Project
Grant
applications



6
Applications to
other CIHR
programs

5 Successfully
funded
projects



22%
Success Rate

\$2,358,946

Funds awarded from CIHR programs (new awards in 2020-21, value over the life of the grant)

Tri-Agency Success Rates: 2020-21

Tri-Council Success - Results for 2020 Fiscal Year (May 1, 2020 - April 30, 2021)					
Agency	Program	Submitted	Successful	Success Rate	National Success Rate
CIHR	Project Grant	7	2	29%	16%
	Planning and Dissemination	0	0	0%	
	Other	16	3	19%	
	Total CIHR	23	5	22%	
NSERC	Alliance	37	24	65%	
	Discovery	27	10	37%	
	Other	26	14	54%	66%
	RTI	16	3	19%	28%
	Total NSERC	106	51	48%	47%
SSHRC	Connection	4	3	75%	77%
	IDG	12	5	42%	45%
	Insight	5	2	40%	41%
	Knowledge Synthesis	1	0	0%	
	Partnership Stage 1	2	2	100%	36%
	Partnership Development	1	1	100%	71%
	PEG	12	7	58%	74%
	PDFs (incl. Banting)	9	3	33%	18%
	SPRI	1	0	0%	
	Total SSHRC	47	23	49%	52%

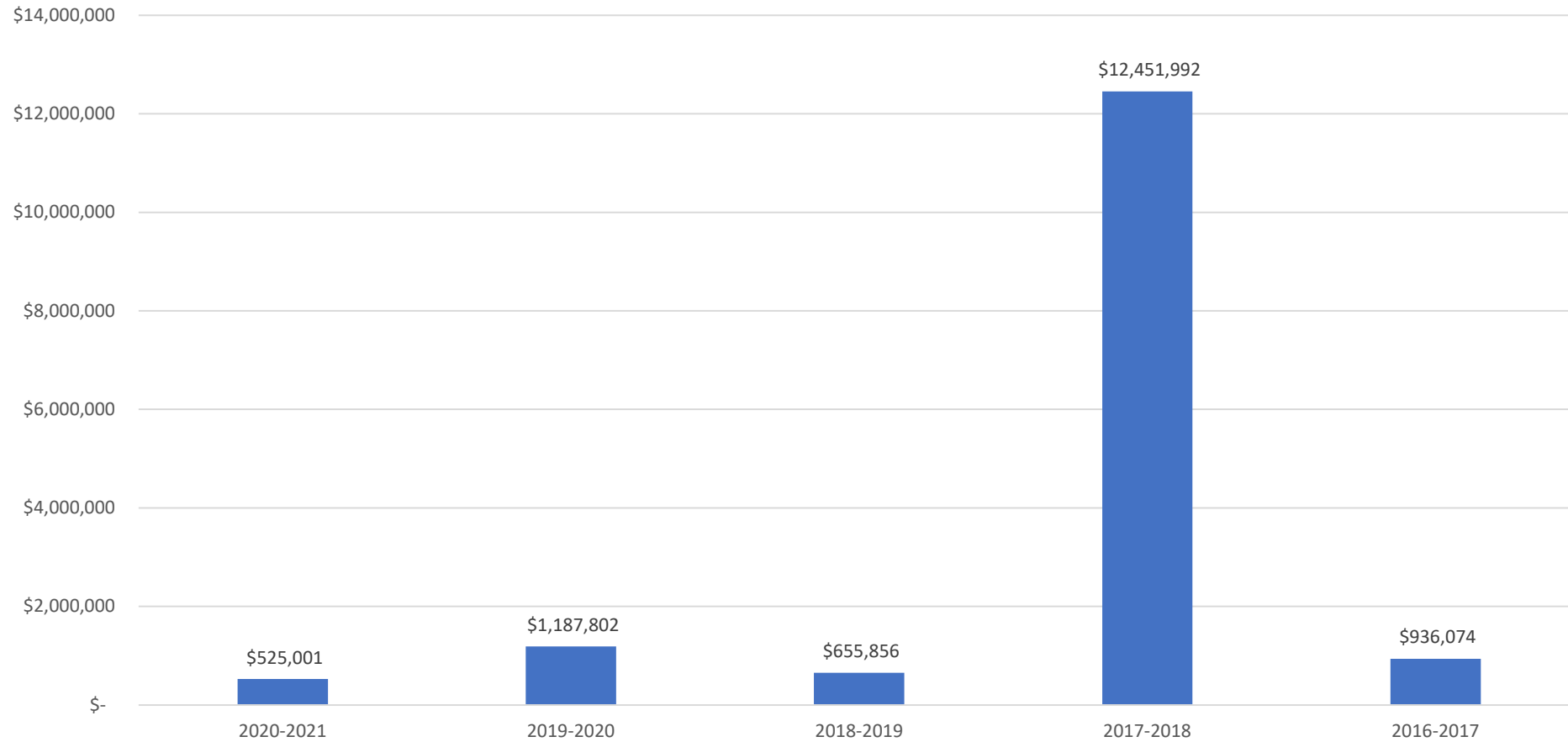
Tri-Agency Success Rates: 2016-2020

		2019-2020				2018-2019				2017-2018				2016-2017			
Agency	Program	Submitted	Successful	Success Rate	National Success Rate	Submitted	Successful	Success Rate	National Success Rate	Submitted	Successful	Success Rate	National Success Rate	Submitted	Successful	Success Rate	National Success Rate
CIHR	Project Grant	5	1	20%	16%	8	1	13%	16%	11	1	9%	15%	3	0	0%	16%
	Planning and Dissemination	1	0	0%		3	2	67%	62%	2	1	50%					
	Other	6	2	33%	N/A	5	1	20%	N/A	2	0	0%		3	3	100%	N/A
	Total CIHR	12	3	25%		16	4	25%		15	2	13%		6	3	50%	
NSERC	Discovery	48	31	65%		52	29	56%	46%	51	29	57%	46%	54	30	56%	67%
	RTI	19	7	37%	28%	17	3	18%	47%	14	3	21%	47%	10	2	20%	N/A
	Engage	10	6	60%		6	4	67%	59%	26	23	88%	59%	19	19	100%	N/A
	Alliance	2	2	100%													
	Other	13	5	38%		19	10	53%	56%	33	22	67%	56%	15	9	60%	N/A
	Total NSERC	92	51	55%		94	46	49%		73	48	66%		98	60	61%	
SSHRC	Connection	8	3	38%	54%	8	5	63%	43%	12	6	50%	56%	9	4	44%	56%
	Insight	11	5	45%	46%	13	3	23%	45%	15	4	27%	40%	13	3	23%	40%
	IDG	12	5	42%	50%	7	3	43%	50%	11	6	55%	32%	5	1	20%	32%
	PEG	6	5	83%	66%	6	5	83%	56%	1	0		N/A				
	Partnership Development	1	0	0%	58%									1	0	0%	37%
	Knowledge Synthesis	2	0	0%													
	Partnership (1 or 2)	0	0							1	0		37%				
	Aid to Scholarly Journals					3	2	67%	80%					2	0	0%	N/A
	Postdoctoral fellowships (incl. Banting)	6	1	17%		4	0	0%	N/A								
	SPRI Supplement	2	2	100%		2	1	50%	N/A								
	Total SSHRC	48	21	44%		43	19	44%		100%	0%	0%		30	8	27%	



CFI and MCU Funding

CFI and MCU: 5-year revenue trend



CFI and MCU: 5-year award history

CFI/ORF Funded Results for 2019-2020 Fiscal Year (May 1, 2019 - April 30, 2020) - 6 Projects Funded			
CFI/MCU	Project/Team leader(s)	Project title	Amount Funded
EOF	McKay, Mike	Building capacity in support of wastewater-based epidemiology to aid public health decision-making	\$ 300,000
2020-2021			\$ 300,000
CFI/ORF Funded Results for 2019-2020 Fiscal Year (May 1, 2019 - April 30, 2020) - 6 Projects Funded			
CFI/MCU	Project/Team leader(s)	Project title	Amount Funded
JELF	Abdelkhalek, Maher	Facility for Research on Sustainable Energy and Battery Management Systems	\$ 200,000
JELF	Hussey, Nigel	FISHSPACE: Novel cost of life metrics of fish for improved understanding of spatial management	\$ 188,960
JELF	Van Engelen, Niel	State-of-the-art research facility for earthquake-resilient infrastructure	\$ 212,000
JELF	Hammond, Thomas John	Attosecond Nanoscopy	\$ 155,520
JELF	Karpowicz, Phillip	Confocal Imaging Infrastructure for Cell Biology and Biochemistry	\$ 281,320
JELF	Maoh, Hanna	Real-time Traffic Monitoring System for Studying Traffic at Canada's Busiest Land Border Crossing	\$ 150,002
2019-2020			\$ 1,187,802
CFI/ORF Funded Results for 2018-2019 Fiscal Year (May 1, 2018 - April 30, 2019) - 5 Projects Funded			
CFI/MCU	Project/Team leader(s)	Project title	Amount Funded
JELF	Emadi, Arezoo	Advanced Flow Management System for Development of Smart Sensor Systems and E-nose Mapping	\$ 96,000
JELF	Albanese, John	Bioarchaeology and Forensics Portable 3D Osteology Lab	\$ 90,000
JELF	Jianu, Ofelia	Transport Phenomena in Multiphase Reacting Flows for Performance Improvement of Sustainable Energy System	\$ 137,230
JELF	Willet, Jennifer	INCUBATOR Lab: advanced bioart laboratory and multimedia theatre	\$ 200,000
JELF	Ahamed, Mohammed Jalal	Establishing high resolution facility for micro-component dynamic vibration analysis	\$ 132,626

CFI and MCU: 5-year award history

CFI/ORF Funded Results for 2017-2018 Fiscal Year (May 1, 2017 - April 30, 2018) - 2 Projects Funded			
CFI/MCU	Project/Team leader(s)	Project title	Amount Funded
IF/ORF	Fisk, Aaron	Real-time Aquatic Ecosystem Observation Network (RAEON)	\$ 11,891,992
JELF	Carmichael, Tricia	Establishment of the Functional Organic Materials Research Centre	\$ 560,000
2017-2018			\$ 12,451,992
CFI/ORF Funded Results for 2016-2017 Fiscal Year (May 1, 2016 - April 30, 2017) - 6 Projects Funded			
CFI/MCU	Project/Team leader(s)	Project title	Amount Funded
JELF	Chowdhury, Sazzadur	Investigation of Nanoscale Smart Surfaces	\$ 568,202
JELF	Heath, Daniel	Automated Liquid Handling Facility for Environmental Research at the Cellular, Organismal and Ecosystem Levels	\$ 143,710
JELF	Karpowicz, Phillip	Animal Tissue Preparation Infrastructure	\$ 35,000
JELF	Loeb, Stephen	PROTO benchtop AXRD powder X-ray diffractometer	\$ 83,162
JELF	Eichhorn, Holger	Analytical and semi-preparative HPLC	\$ 42,000
JELF	Xu, Shijing	Virtual Communication System for Reciprocal Learning and Research between Canada and China	\$ 64,000
2016-2017			\$ 936,074



Canada Research Chairs

Canada Research Chairs 2020-21

- Dr. Catherine Febria, CRC Tier 2 in Freshwater Restoration Ecology
- Dr. Aaron Fisk, CRC Tier 1 in Trophic Ecology
- Dr. Narayan Kar, CRC Tier 1 in Electrified Vehicles
- Dr. Stephen Loeb, CRC Tier 1 in Supramolecular Chemistry & Functional Materials
- Dr. Oliver Love, CRC Tier 2 in Integrative Ecology
- Dr. Hugh MacIsaac, CRC Tier 1 in Aquatic Invasive Species
- Dr. Charlene Senn, CRC Tier 1 in Sexual Violence
- Dr. Jennifer Willet, CRC Tier 2 in Art, Science and Ecology
- Dr. Shijing Xu, CRC Tier 2 in International and Intercultural Reciprocal Learning in Education



Internal Grant Programs

UWindsor internal grant programs

The University of Windsor provides support for its researchers through funding competitions administered by the Office of Research and Innovation Services (ORIS). The charts below outline the ORIS Internal Grants Programs which provide funding opportunities for researchers aimed at increasing the success rates for external funding programs. Outlined here is a short description of each funding program:

- **UWindsor Travel-SSHRC Exchange Grant (UWT-SEG):** Travel funds are provided for presenting papers at conferences [previously called Academic Development Travel Fund (ADTF)], and Knowledge Mobilization funds are available for other types of knowledge transfer.
- **UWindsor SSHRC Explore:** Seed grants for social sciences and humanities researchers aimed at strengthening external grant applications [previously called Grant Humanities and Social Sciences Research Grants (HSSRG)].
- **Tri-Success Grant Program (TSGP):** Funds provided for proposal development for those receiving minimum levels of ranking with respect to each of the Tri-Council (CIHR, NSERC, SSHRC) operating grant competitions.
- **Undergraduate Research Experience (URE) Grants:** Grants for projects that involve University of Windsor undergraduates in research and scholarly activities and encourage faculty to mentor students as they pursue research.
- **Research Grants for Women:** Seed grants for female researchers aimed at strengthening external grant applications.

Internal grants funding snapshot: 2020-21



53 Applications to UWindsor internal grant programs

12
Applications for travel and knowledge mobilization

23
Applications for student research grants

17
Applications for seed grant programs

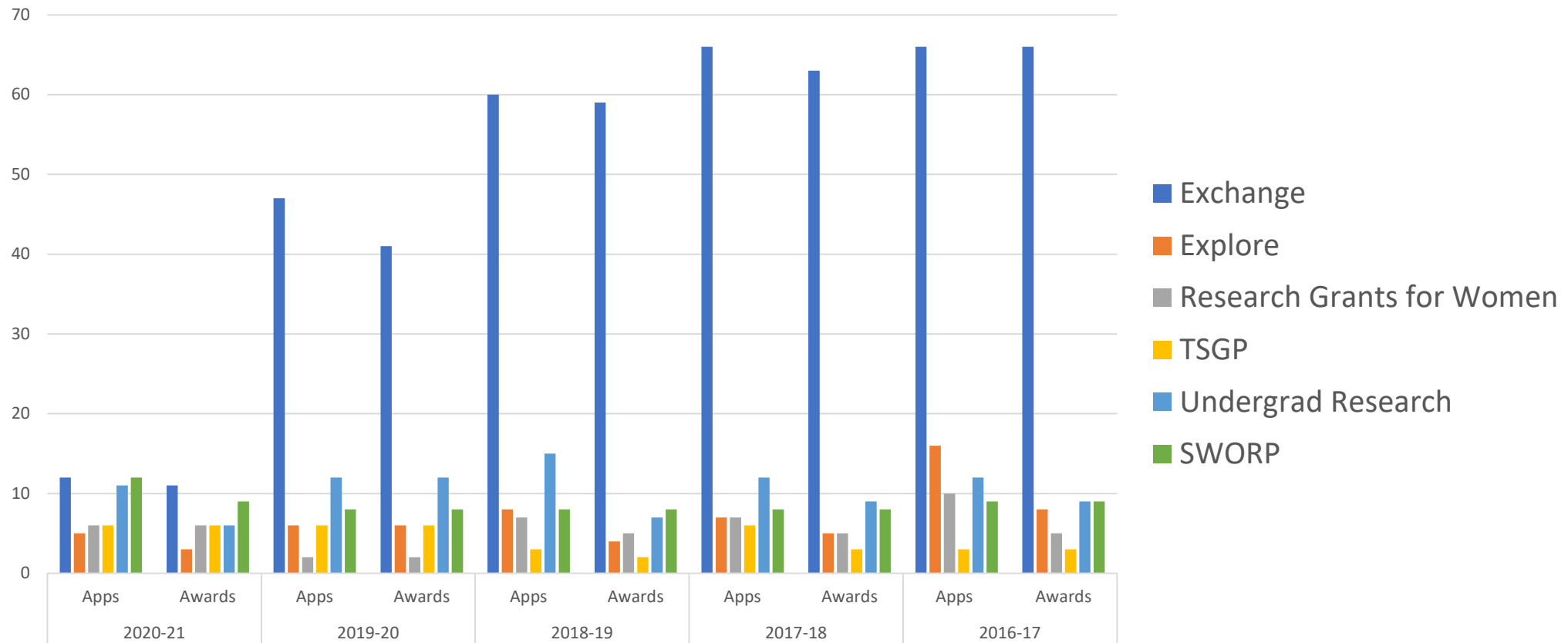
41 Successfully funded projects

77%
Success Rate

\$98,000

Funds awarded from UWindsor programs

Internal grants: 5-year summary



**Exchange grant applications were negatively impacted by COVID as no academic travel occurred for most of 2020-21*

Internal grants success rates

Internal grant programs		2020-21			2019-20			2018-19			2017-18			2016-17		
	Value	Apps	Awards	Success Rate	Apps	Awards	Success Rate	Apps	Awards	Success Rate	Apps	Awards	Success Rate	Apps	Awards	Success Rate
Exchange - February	\$ 1,000.00	3	3	100%	7	3	43%	12	12	100%	24	24	100%	11	11	100%
Exchange - June	\$ 1,000.00	4	4	100%	30	29	97%	38	37	97%	31	28	90%	44	44	100%
Exchange - October	\$ 1,000.00	5	4	80%	10	9	90%	10	10	100%	11	11	100%	11	11	100%
Explore	\$ 5,000.00	5	3	60%	6	6	100%	8	4	50%	7	5	71%	16	8	50%
Research Grants for Women	\$ 5,000.00	6	6	100%	2	2	100%	7	5	71%	7	5	71%	10	5	50%
TSGP	\$ 5,000.00	6	6	100%	6	6	100%	3	2	67%	6	3	50%	3	3	100%
Undergrad Research	\$ 2,000.00	11	6	55%	12	12	100%	15	7	47%	12	9	75%	12	9	75%
SWORP	\$ 5,000.00	12	9	75%	8	8	100%	8	8	100%	8	8	100%	9	9	100%
RSF		28	27	96%	51	51	100%	29	29	100%	34	34	100%	30	30	100%
VPRI Matching		53	39	74%	87	70	80%	37	18	49%	60	50	83%	36	24	67%
TOTALS		53	39	74%	219	196	89%	167	132	79%	200	177	89%	182	154	85%

Seed funding programs

- The Office of the Vice President, Research and Innovation and the Faculties provide two internal funds to support research:
 - **VPRI Matching:** commits internal funds to projects which will be externally funded, in order to provide leverage, cover shortfalls, and ensure success of projects.
 - **Research Stimulus Fund:** provides both matching funds and seed grants to support researchers in developing applications and new projects or to strengthen applications with additional institutional cash contributions to grant proposals. The RSF program closed in 2020-21 and is being redistributed under the new budget model

Seed funding 2020-21



50

Contributions to research projects from the Office of the Vice President, Research and Innovation



32
Single-year
contributions

18
Multi-year
contributions



\$307,876

Funds contributed to research projects



27

Seed funded projects and contributions through the Research Stimulus Fund

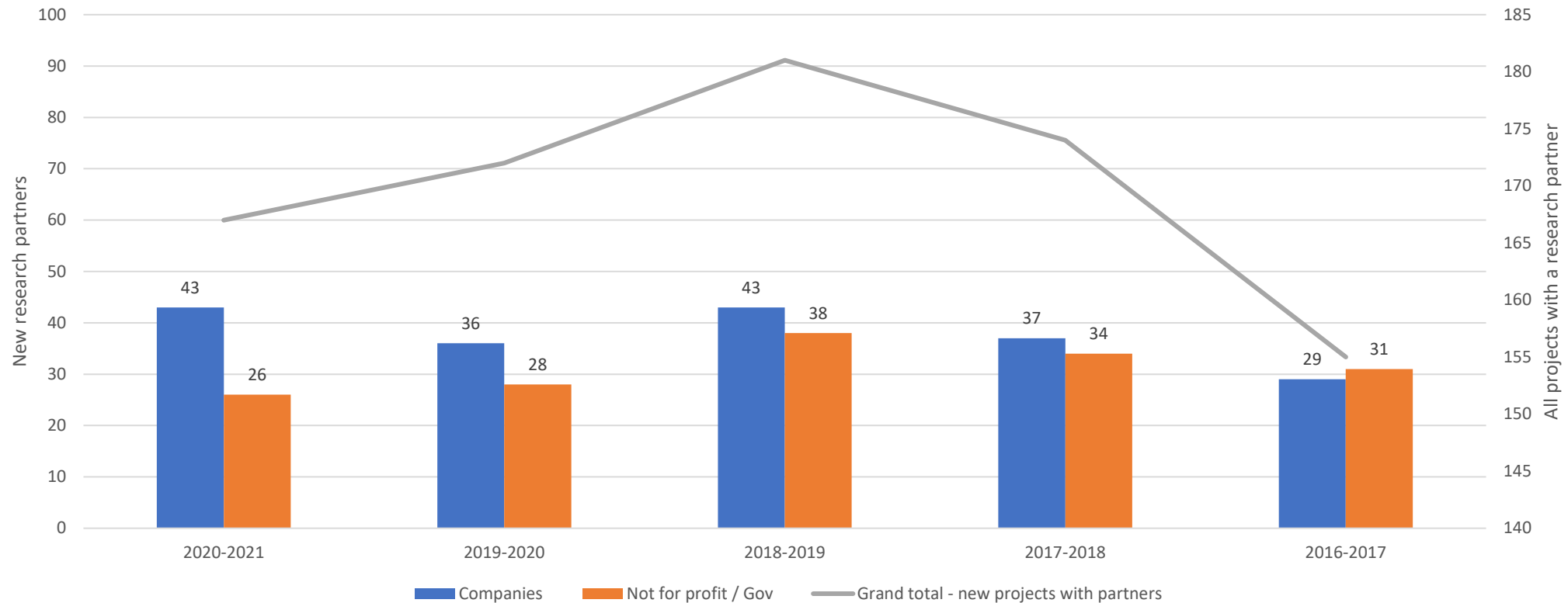
\$500,000

Funds contributed to research projects



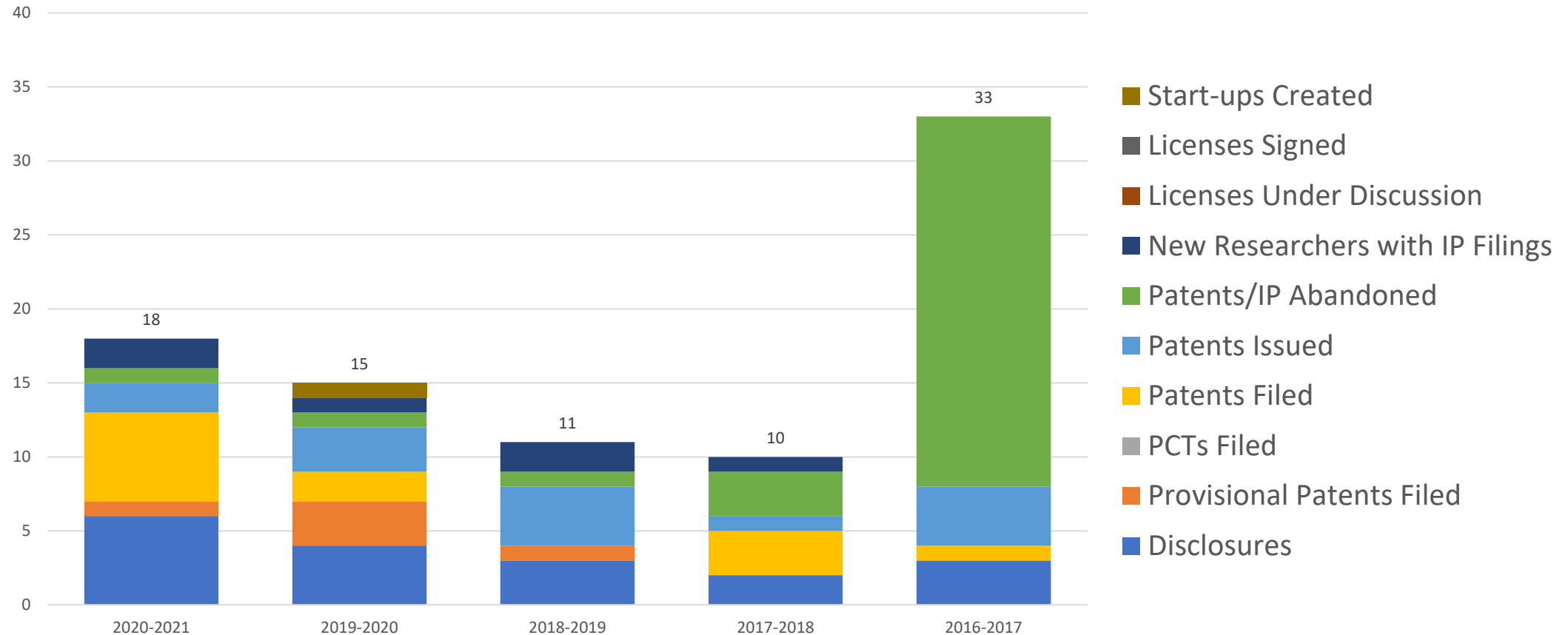
Intellectual Property and Research Contracts

Research Partnerships - 5-Year summary



Any research project where a UWindsor researcher is working with a non-academic partner is considered a research partnership. Many projects include multiple research partners. New partners are disaggregated by organization type: companies and industrial partners, and non-profit partners, which includes research contracts with government agencies. The upper line denotes the total number of projects kicked off in a given year that include at least one research partner. Partnerships not resulting in a submission for funding have not been included.

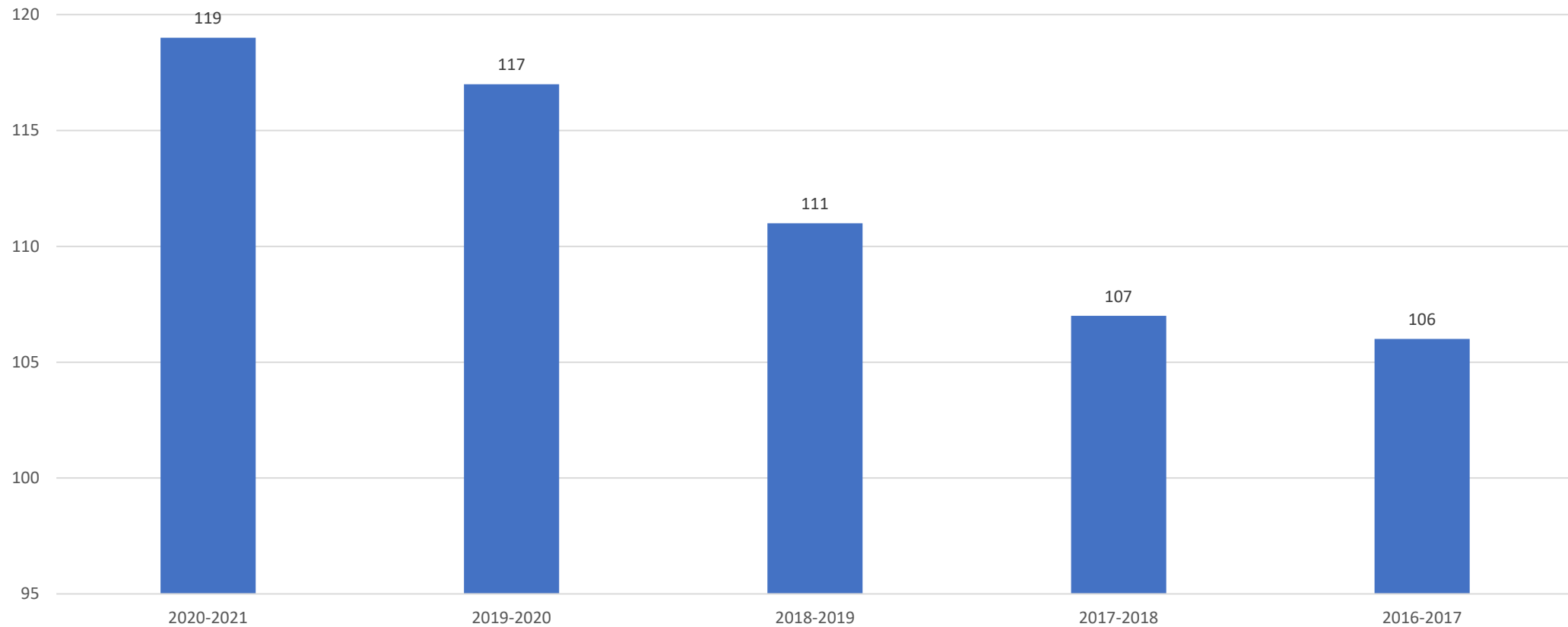
Intellectual Property Management and Technology Transfer: 5-Year Summary



Intellectual Property Management and Technology Transfer: 5-Year Summary

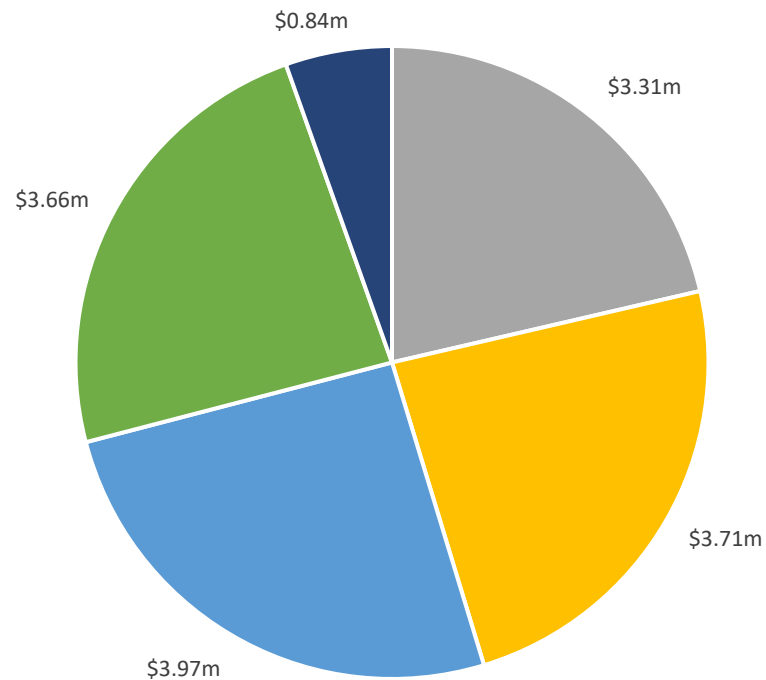
	2020-2021	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016	Total
Disclosures	6	4	3	2	3	8	20
Provisional Patents Filed	1	3	1	0	0	8	12
PCTs Filed	0	0	0	0	0	2	2
Patents Filed	6	2	0	3	1	19	25
Patents Issued	2	3	4	1	4	12	24
Patents/IP Abandoned	1	1	1	3	25	0	30
New Researchers with IP Filings	2	1	2	1	0	0	4
Licenses Under Discussion	0	0	0	0	0	4	4
Licenses Signed	0	0	0	0	0	0	0
Start-ups Created	0	1	0	0	0	0	1
TOTAL IP FILINGS	18	15	11	10	33	53	122

Technologies in the IP inventory

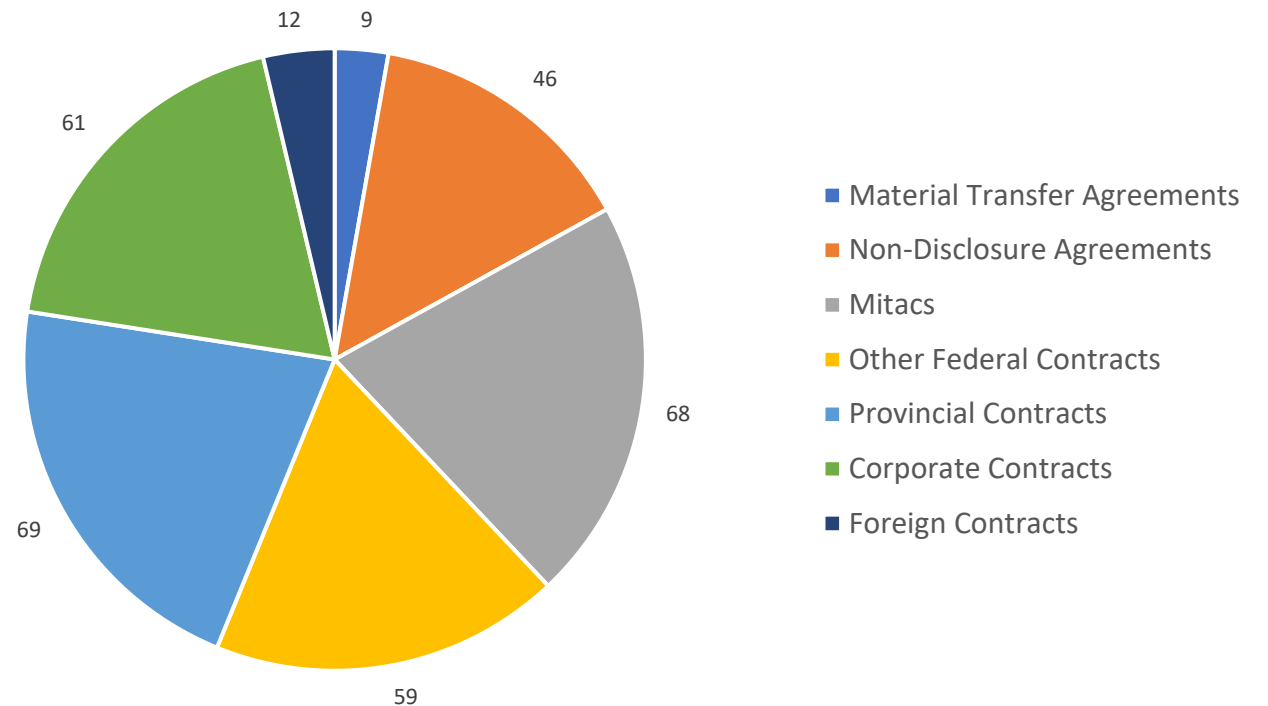


Research contract sources: 2020-21

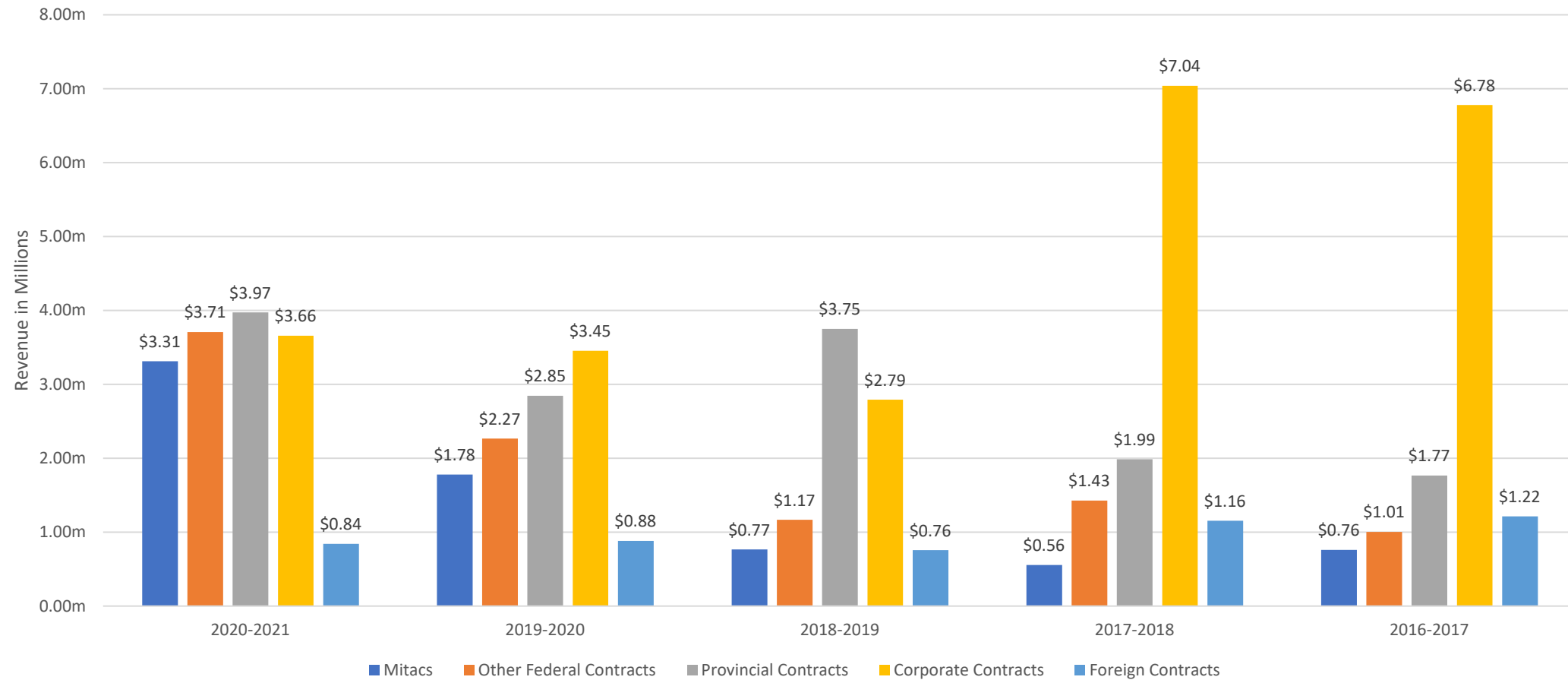
Research Revenue by Contract Source



Number of Research Contracts by Source



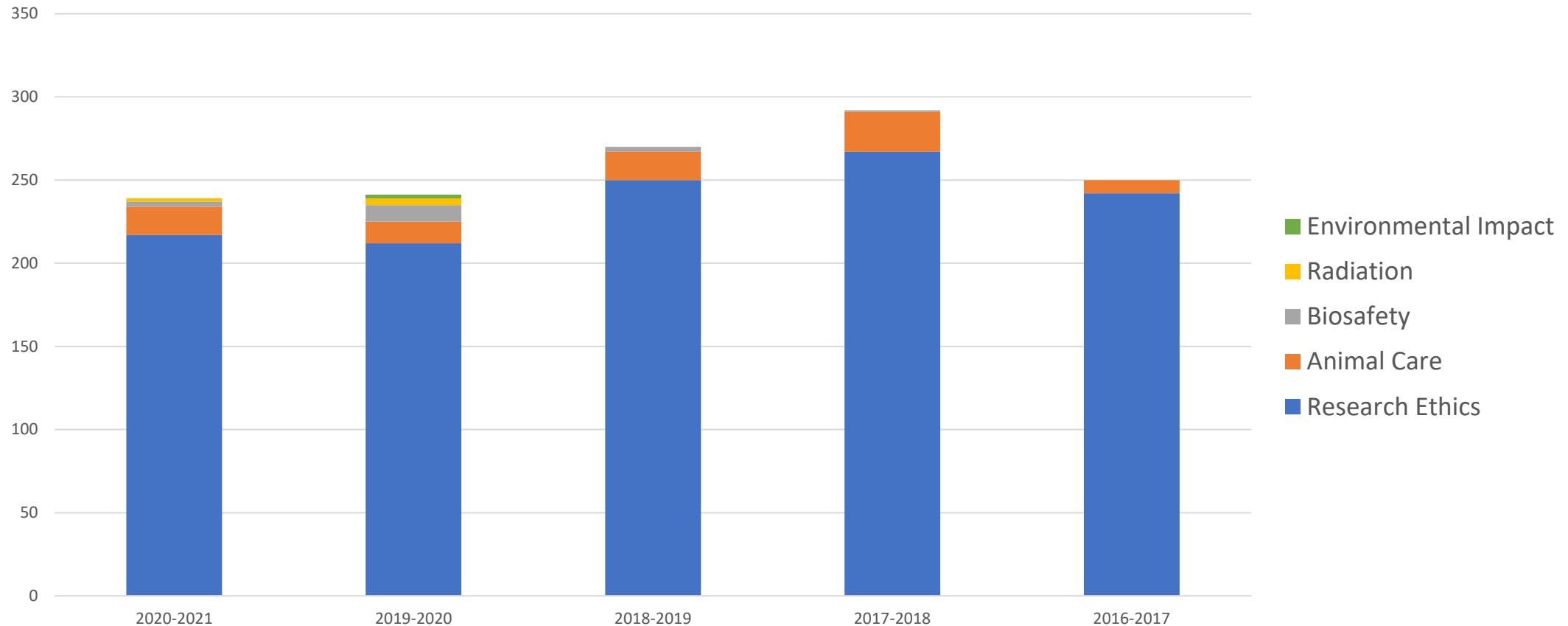
Research contract revenue sources: 5-year trend





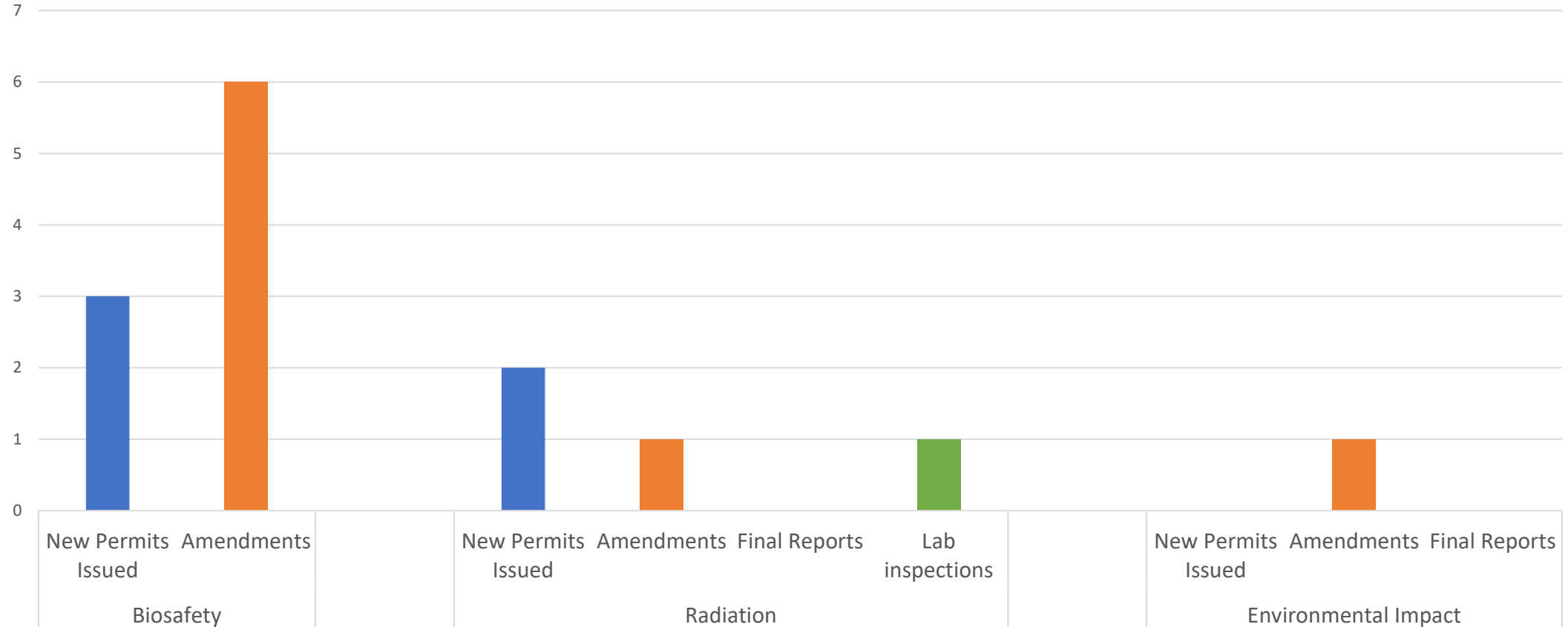
Research Ethics and Safety

New research clearances and permits issued



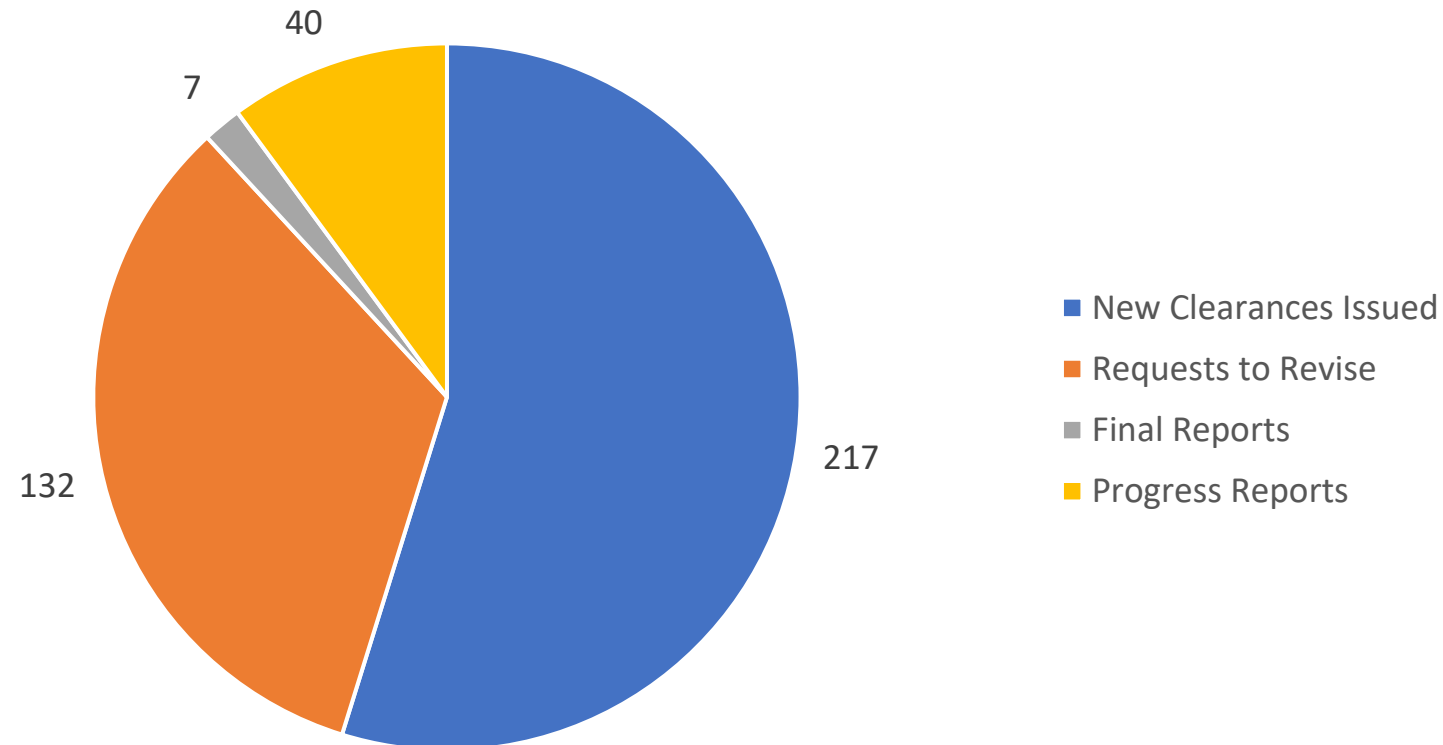
Research Safety certifications were not entered into eRSO prior to 2018, and staff currently have limited access to paper files – numbers may not be accurate

Research Safety activities in 2020-21



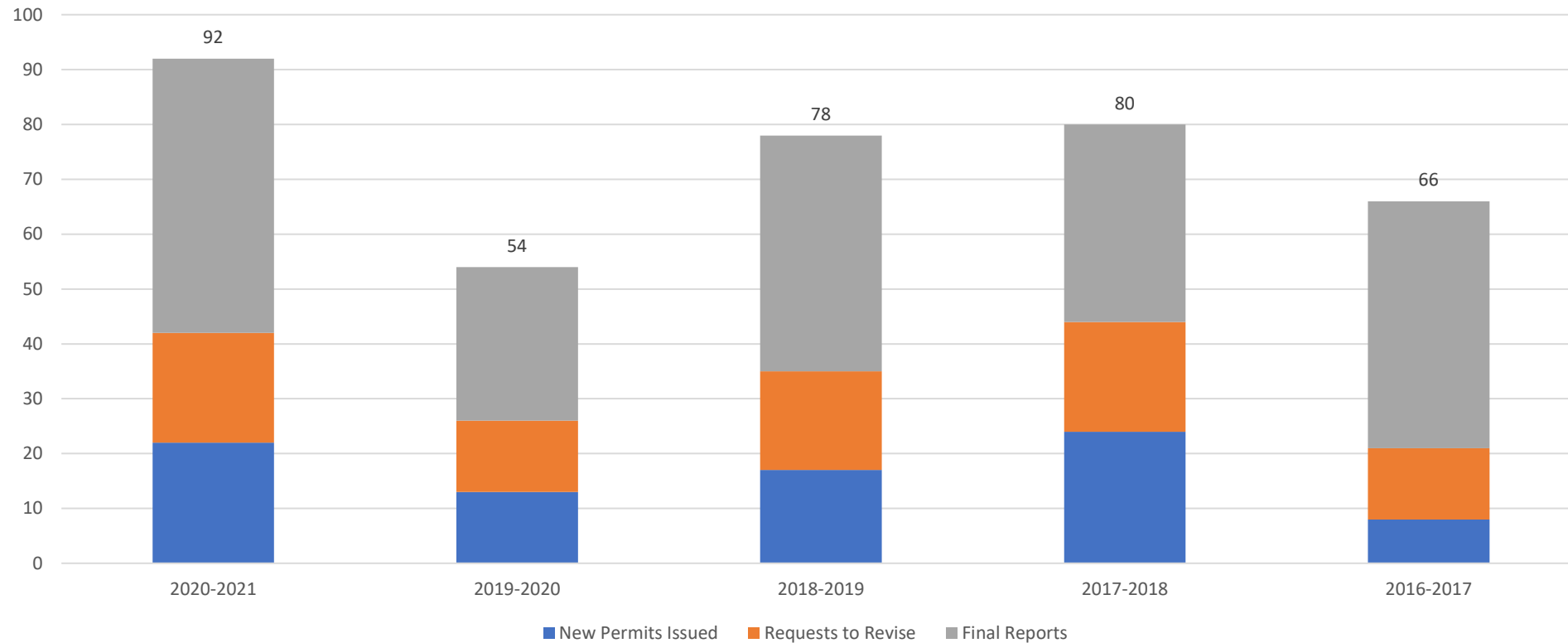
*Due to a gap in data, a 5-year trend is not available

Research Ethics Board activities in 2020-21



*Due to a gap in data, a 5-year trend is not available

Animal Care Committee activities – 5 year trend



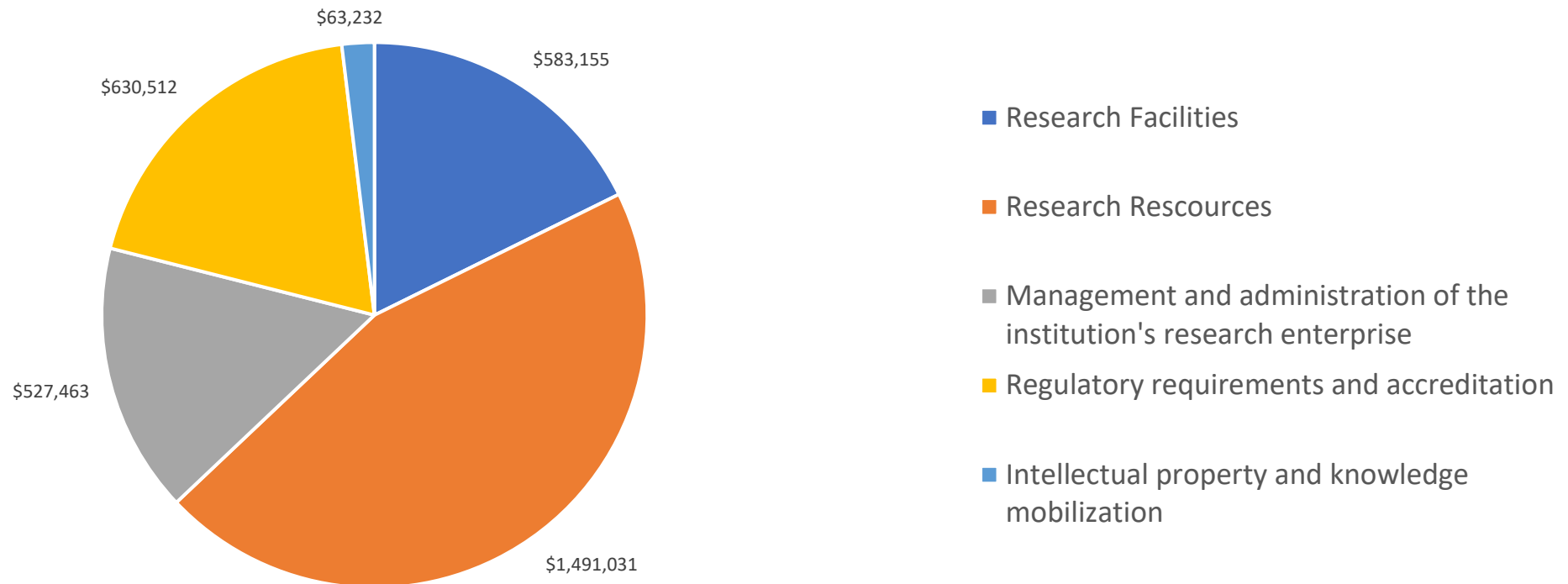
*During the 2019-2020 year, there was a decrease in animal care committee activities due to the shutdown of on-campus research activities at the beginning of the COVID-19 pandemic. A corresponding increase can be seen in 2020-21 as on-campus research resumed.



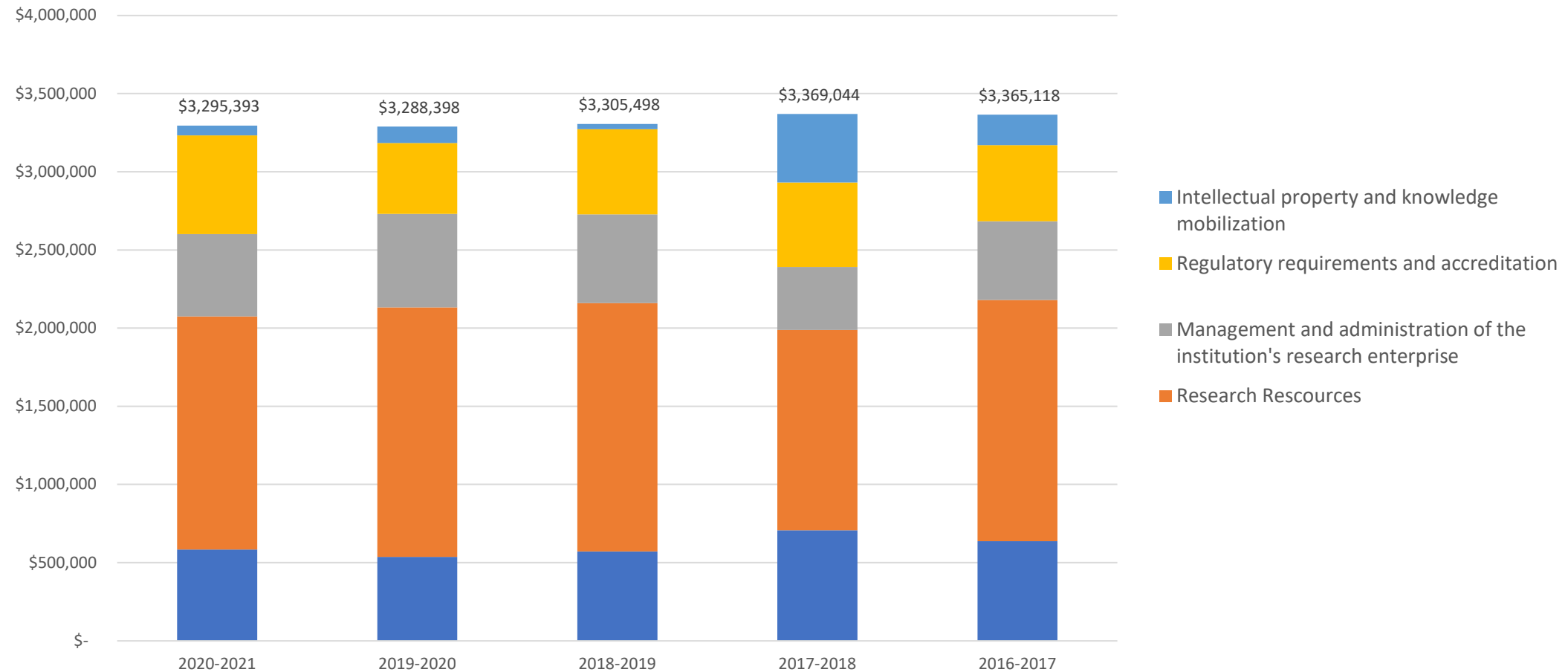
Other measures of success

Federal Research Support Fund 2020-21

The Research Support Fund program provides funding for research facilities, resources, management and administration, regulatory requirements and accreditation and intellectual property management. The amount UWindsor receives from this program is contingent on our level of Tri-Council funding based on a three-year rolling average. The university's allocation for the 2020-21 fiscal year is **\$3,295,393.00**



Federal Research Support Fund Grant - 5 Year Trend



Special awards



Member of the Order of Canada: Dr. Hoda ElMaraghy

Government of Ontario David Walter Mundell Medal: Prof. David Tanovich

Professional Engineers of Ontario Order of Honour Member: Dr. Waguih ElMaraghy

Canada Clean50 Award: Dr. Rupp Cariveau

Western North Carolina Historical Association Thomas Wolfe Memorial Literary Award: Dr. Sandra Muse Isaacs

Society for Sex Therapy and Research Consumer Book Award: Dr. Dana Menard

Canadian Cinema Editors Best Editing in Feature Documentary Award: Prof. Nick Hector (*Prey*)

Ontario Medical Association Honourary Membership: Dr. Siyaram Pandey

APMA Institute for Automotive Cybersecurity Outstanding Individual Cyber Achievement Award: Dr. Mitra Mirhassani

APMA Institute for Automotive Cybersecurity Cyber Woman of the Year Award: Dr. Ikjot Sani

IT World Canada's Top 20 Women in Cyber Security Award: Dr. Mitra Mirhassani

Stephen Leacock Memorial Medal for Humour: Dr. Heidi L.M. Jacobs

Law Society of Ontario Medal: Prof. Jeffrey Berryman

Province of Ontario John Charles Polanyi Prize: Dr. Marcus Drover

International Association for Great Lakes Research Lifetime Achievement Award: Dr. Jan Ciborowski

ERCA Conservation Honours Education Award: Freshwater Restoration Ecology Centre

In 2020-2021, your Office of Research and Innovation Services supported:



670

Applications to external funding programs

19.6%

Increase over 2019-2020

557

Applications for research grants

69

New partnerships formed

484

External applications successfully funded

72.2%

Success rate in 2020-21

96

Research contracts established

6

New invention disclosures

Contact Us

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Research Ethics Board

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Animal Care Committee

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Research Safety Committee

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