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Survey of Intellectual Property Commercialization in the Higher Education Sector

2008

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Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published

Note

Estimates for reference year 2007 are included for reference purposes only. Selected revisions have been made to the data since it was published in October, 2009.

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Highlights

- Total income from Intellectual Property (IP) at reporting[1] Canadian universities and affiliated teaching hospitals was $53.2 million (current dollars) in 2008 (Table 15-1). Average income from IP of $425,500, represents a 9% decrease from 2007 ($468,500).
- About 81% of Canadian universities and affiliated hospitals who reported information to the survey were engaged in intellectual property management (IP) in 2008 (Table 1-1).
- There were 321 full-time equivalent employees engaged in IP management in 2008, while total operational expenditures for IP management were $51.1 million (Table 2-1). When averaged by institution, operational expenditures increased by 9% between 2007 and 2008, from $374,000 to $409,000.
- The value of research contracts undertaken by reporting universities and affiliated hospitals was estimated at $2 billion, up 55% from 2007 (Table 8-1).
- In 2008, the number of new inventions disclosed and reported by reporting universities and affiliated hospitals was 1,613 (Table 11-1). This represents a 20% increase compared to 2007, mostly due to those same institutions that reported in the last three years.
- There were 1,791 patent applications filed with reporting universities and affiliated hospitals in 2008 (Table 12-1). Although this represents a 10% increase overall compared to 2007, when averaged by institution, the number of patent applications actually dropped by 2%.
- The number of patents issued to reporting Canadian universities and affiliated hospitals declined by almost a third to 346 (Table 12-1), while the total number of patents held at the end of 2008 stood at 5,908 (Table 13-1).
- A total of 19 spin-off companies launched by reporting universities and affiliated hospitals were incorporated in 2008 (Table 20-1). This brings to 1,242 the total number of companies spun off by reporting educational institutions to date since the series began in 1999 (Tables 16-1 and 17-1).

Because of significant variations observed between universities and hospitals on intellectual property issues, data from this survey are not weighted or imputed. Results are presented as gross results and only cover the respondent population.

1. In 2008, there were 125 educational institutions (Canadian universities and affiliated teaching hospitals) reporting to the survey.

Analysis

Introduction

Intellectual property commercialization is the process of transferring new technologies, in the form of products or knowledge, from the lab to the marketplace. There are various indicators to measure this process, for example: the number of institutions engaged in intellectual property (IP) management (Table 1-1), IP income (Table 15-1), number of inventions, patents and licenses (Tables 11-1, 12-1, 13-1 and 14-1), and value of research contracts (Table 8-1).

IP management infrastructure

In 2008, 81% of responding Canadian universities and affiliated teaching hospitals (educational institutions) (101) were engaged in IP management. While 88% of these universities (68) reported being engaged in IP management in 2008, only 69% of affiliated hospitals (33) were similarly engaged (Table 1-1).

There were 321 full-time equivalent employees (FTE's) reported in IP management in 2008 (Table 2-1). Although this represents a 13% increase compared to 2007 (285), the average number of FTEs (number per institution) increased by a moderate 1%. Among the technology transfer personnel, 20% of staff had 2 years or less of experience or 3 to 4 years of experience, while almost a third had 5 to 9 years of experience (Table 4-1). A Master's degree was the highest level of education for almost half of the technology transfer personnel (140 employees out of 327) (Table 5-1).

Total operational expenditures reported for IP management were $51.1 million compared with $41.9 million in 2007 (Table 2-1). Average operational expenditures, equal to $409,000, increased by 9% compared to 2007 ($374,000). Some 43% of total operational expenditures in 2008 were funded from institutional base funding, while a third were funded from IP commercialization revenues (Table 3-1).

Income from IP

Total income reported from IP was $53.2 million (current dollars) in 2008, while average income, at $425,500, decreased by 9% compared to average income in 2007 ($468,500) (Table 15-1). Royalties accounted for two thirds of all income from IP in 2008.

Research contracts

Total value of research contracts reported was almost $2 billion in 2008, representing a 55% increase from 2007 (Table 8-1), due almost entirely to those same institutions that reported information in both 2007 and 2008. The federal government and provincial and other levels of government maintained their respective shares of that amount (a fifth and a quarter respectively) while "other Canadian sources" (i.e. businesses and non profit organizations) accounted for a third of that total value of research contracts. Clinical trials and collaborative research and development accounted for 13% and 10% respectively of that total research contracts value in 2008 (Table 9-1).

Protection of IP

The pool of discoveries and patent applications influence the number of technologies protected. From 2004 to 2008, there were 63 universities and affiliated hospitals that filed patent applications while there were 56 educational institutions registering copyrights (Table 10-1).

In 2008, the number of new inventions disclosed to educational institutions increased by almost 20% to 1,613, mostly due to those same institutions that reported in 2006, 2007 and 2008. In comparison, there were 361 new IP disclosures for copyrights in 2008 (Table 11-1).

Meanwhile, the total number of inventions (past and new disclosures)[1] reported to be legally protected by universities and affiliated hospitals was 820 while only 19 total disclosures were protected by copyrights (Table 11-1).

There were 15 patent applications at various stages of progress per institution on average (i.e. initiating and follow-on applications), for a total of 1,791 applications in 2008 (Table 12-1). Although this represents a 10% increase overall compared to 2007, when averaged by institution, the number of patent applications actually dropped by 2%.

The number of patents issued to Canadian universities and teaching hospitals declined by a third between 2007 and 2008 to 346 (Table 12-1), while the patent portfolio held by these institutions at the end of 2008 stood at 5,908 (Table 13-1).

Commercialization of IP

University and hospital technologies are generally commercialized in two ways: they are patented or licensed to established business organizations; or new companies are spun off from educational institutions.[2]

Patents and licenses

Some 39% of the patent portfolio held by universities and affiliated hospitals[3] (or 1,436) had been licensed out, assigned or otherwise commercialized at the end of 2008, a smaller share than the one registered at the end of 2007 (Table 13-1). Half of those patents were held in countries outside Canada and the U.S.

Reporting educational institutions granted 524 new licenses and options in 2008; they executed 3,343 active licenses and options with Canadian and foreign organisations (Table 14-1).

Spin-offs

In 2008 there were 19 newly incorporated companies launched by reporting Canadian universities and affiliated hospitals to commercialize their respective technologies (Table 17-1). This brings to 1,242 the total number of companies spun off by reporting educational institutions to date since the series began in 1999 (Table 16-1).

The regional distribution of spin-off companies remained similar in 2008 compared to 2007 (Table 20-1).

1. These are disclosures which, after evaluation, universities and hospitals determined to contain enough novelty to represent an advance over existing technologies and offer economic potential.
2. These spin-off companies are set up to: (a) license the institution's technology; or (b) fund research at the institution in order to develop technology that will be licensed by the company; or (c) provide a service that was originally offered through a department or unit of the institution.
3. The 39% share of patent portfolio refers here to the portfolio of those educational institutions that licensed, assigned or commercialized at least one patent at the end of 2008, not to the full patent portfolio held at end of year.

Statistical tables

Table 1-1
Institutions engaged in intellectual property management — 2008

	Hospitals	Universities	Responding institutions
	number		
Institutions	48	77	125
Institutions engaged in intellectual property management	33	68	101
Institutions with intellectual property offices	13	56	69
Count of intellectual property offices	14	64	78
	percent		
Institutions engaged in intellectual property management	69	88	81
Institutions with intellectual property offices	27	73	55

Note(s): Intellectual property management includes identification, protection, promotion or commercialization of intellectual property. Institutions: Educational institutions. The percentage of institutions with intellectual property offices is calculated as follows: (Institutions with intellectual property offices/Total number of institutions)x100. This calculation method is different from what was used in 2007 to reflect changes in the way the question was formulated. Therefore, any comparison between 2007 and 2008 percentages should be done with caution.

Table 1-2
Institutions engaged in intellectual property management — 2007

	Hospitals	Universities	Responding institutions
	number		
Institutions	46	66	112
Institutions engaged in intellectual property management	25	55	80
Institutions with intellectual property offices	18	51	69
Count of intellectual property offices	31	59	90
	percent		
Institutions engaged in intellectual property management	54	83	71
Institutions with intellectual property offices	72	93	86

Note(s): Intellectual property management includes identification, protection, promotion or commercialization of intellectual property. Institutions: Educational institutions. The percentage of institutions with intellectual property offices is calculated as follows: (Institutions with intellectual property offices/ Institutions engaged in intellectual property management)x100.

Table 2-1
Expenditures on intellectual property management — 2008

	Expenditures
	thousands of dollars
Total operational expenditures for intellectual property management	**51,124**
Salaries and benefits corresponding to full-time equivalents	28,056
Patent and regular legal expenditures [1]	15,331
Litigation expenditures [2]	361
Other operational expenditures	7,376
	number
Full-time equivalent employees engaged in intellectual property management	**321**

1. Patent and regular legal expenditures include those for patent filings, patent searches, registration of copyright, etc.
2. Litigation expenditures are those related to disputes over patents or other intellectual property and include settlements.

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management. Full-time equivalent is an estimate of the number of person-years.

Table 2-2
Expenditures on intellectual property management — 2007

	Expenditures
	thousands of dollars
Total operational expenditures for intellectual property management	**41,851**
Salaries and benefits corresponding to full-time equivalents	22,490
Patent and regular legal expenditures [1]	12,730
Litigation expenditures [2]	x
Other operational expenditures	x
	number
Full-time equivalent employees engaged in intellectual property management	**285**

1. Patent and regular legal expenditures include those for patent filings, patent searches, registration of copyright, etc.
2. Litigation expenditures are those related to disputes over patents or other intellectual property and include settlements.

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management. Full-time equivalent is an estimate of the number of person-years.

Table 3-1
Source of operational expenditures for intellectual property management — 2008

	Canada	Atlantic	Quebec	Ontario	Prairies	British Columbia
	percent					
Institutional base funding	**43**	24	67	47	24	29
Institutional one-time allocations	**6**	x	7	2	x	x
Intellectual property commercialization revenues	**31**	x	x	38	26	38
External sources	**20**	56	x	13	x	x

Note(s): Based on response of **69** institutions with intellectual property offices, engaged in intellectual property management. Components may not add to total due to rounding.

Table 3-2
Source of operational expenditures for intellectual property management — 2007

	Canada	Atlantic	Quebec	Ontario	Prairies	British Columbia
	percent					
Institutional base funding	**41**	x	59	59	21	x
Institutional one-time allocations	**5**	x	x	1	x	1
Intellectual property commercialization revenues	**27**	11	x	30	16	x
External sources	**27**	62	x	11	x	39

Note(s): Based on response of **69** institutions with intellectual property offices, engaged in intellectual property management. Components may not add to total due to rounding.

Table 4-1
Years of experience of technology transfer personnel — 2008

	Personnel	
	number	percent
Total	**327**	**100**
2 years or less	67	20
3 to 4 years	64	20
5 to 9 years	95	29
10 to 14 years	35	11
15 to 19 years	26	8
20 years and over	32	10
Not stated	8	2

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management.

Table 4-2
Years of experience of technology transfer personnel — 2007

	Personnel	
	number	percent
Total	**283**	**100**
2 years or less	72	25
3 to 4 years	58	20
5 to 9 years	78	28
10 to 14 years	30	11
15 to 19 years	23	8
20 years and over	21	7
Not stated	1	0

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management.

Table 5-1
Highest educational attainment of technology transfer personnel — 2008

	Personnel
	number
Total technology transfer personnel	**327**
Bachelor's degree	69
Master's degree	140
Doctorate	89
Other	29

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management. The table is based on direct response from those institutions as to highest university degree obtained by employees, whereas in the past that information was derived from information on all university degrees of employees provided. Therefore, any comparison with previous years should be done with caution.

Table 5-2
Highest educational attainment of technology transfer personnel — 2007

	Personnel
	number
Total technology transfer personnel	**283**
Bachelor's degree	68
Master's degree	114
Doctorate	82
Other	19

Note(s): Based on response from **69** institutions with intellectual property offices, engaged in intellectual property management.

Table 6-1
Legal services used for intellectual property matters by institutions with central offices engaged in intellectual property management — 2008

	Responding institutions
	number
Total institutions with intellectual property offices	**69**
In-house legal counsel	32
Outside legal counsel	53
In-house patent agent	6
Outside patent agent	52
Not stated	2

Note(s): Based on response of **69** institutions reporting having intellectual property offices. Institutions: Educational institutions.

Table 6-2
Legal services used for intellectual property matters by institutions with central offices engaged in intellectual property management — 2007

	Responding institutions
	number
Total institutions with intellectual property offices	**64**
In-house legal counsel	28
Outside legal counsel	42
In-house patent agent	3
Outside patent agent	40
Not stated	7

Note(s): Based on response of **64** institutions reporting having intellectual property offices. Institutions: Educational institutions.

Table 7-1
Ownership policy of intellectual property created at the institution — 2008

	Institution owns	Researcher owns	Joint ownership	Other ownership policy	No policy on ownership
	percent				
Inventions	22	42	17	0	19
Intellectual property protected by copyright					
Software or databases	19	43	18	1	19
Educational materials	11	58	10	1	19
Other materials	13	54	11	1	21
Industrial designs	23	41	14	1	21
Trademarks or official marks	17	46	11	0	26
New plant varieties	8	17	4	0	71

Note(s): Based on the questionnaires received representing **125** responding institutions.

Table 7-2
Ownership policy of intellectual property created at the institution — 2007

	Institution owns	Researcher owns	Joint ownership	Other ownership policy	No policy on ownership
	percent				
Inventions	20	35	21	4	10
Intellectual property protected by copyright					
Software or databases	17	42	16	8	11
Educational materials	11	49	14	7	14
Other materials	10	41	7	7	16
Industrial designs	14	35	7	4	22
Trademarks or official marks	23	30	6	4	22
New plant varieties	11	32	6	7	27

Note(s): Based on the questionnaires received representing **112** responding institutions.

Table 8-1
Value of research contracts by sponsor — 2008

	Contracts
	thousands of dollars
Total	**1,971,207**
Federal government	440,132
Provincial and other levels of government	481,715
Other Canadian sources (business enterprises or organizations)	660,852
Foreign sources (government, business enterprises or organizations)	235,321
Other	153,187

Note(s): Research contracts do not include research grants (e.g. SSHRC, NSERC, CIHR) and multi-year contracts have been prorated for the reference year. Based on the questionnaires received representing **125** responding institutions.

Table 8-2
Value of research contracts by sponsor — 2007

	Contracts
	thousands of dollars
Total	**1,273,677** r
Federal government	269,429 r
Provincial and other levels of government	334,538 r
Other Canadian sources (business enterprises or organizations)	320,872 r
Foreign sources (government, business enterprises or organizations)	203,344 r
Other	145,494 r

Note(s): Research contracts do not include research grants (e.g. SSHRC, NSERC, CIHR) and multi-year contracts have been prorated for the reference year. Based on the questionnaires received representing **112** responding institutions.

Table 9-1
Value of research contracts by type of research — 2008

	Value of research contracts
	thousands of dollars
Total value of research contracts	**1,971,207**
Clinical trials	251,653
Collaborative research and development	194,655

Note(s): Based on the questionnaires received representing **125** responding institutions.

Table 9-2
Value of research contracts by type of research — 2007

	Value of research contracts
	thousands of dollars
Total value of research contracts	**1,273,677** r
Clinical trials	249,510 r
Collaborative research and development	54,831

Note(s): Based on the questionnaires received representing **112** responding institutions.

Table 10-1
Types of intellectual property protection engaged in from 2004 to 2008

	Responding institutions
	number
Filing of patent applications	63
Registration of copyright	56
Registration for industrial designs, trademarks, official marks or integrated circuit topographies	28
Filing of applications for plant breeders' rights	7
Executing non-disclosure or confidentiality agreements	66
Administration of material transferred agreements inbound	52
Administration of material transferred agreements outbound	46
Other	4

Note(s): Based on the questionnaires received representing **125** responding institutions. Institutions: Educational institutions.

Table 10-2
Types of intellectual property protection engaged in from 2003 to 2007

	Responding institutions
	number
Filing of patent applications	59
Registration of copyright	25
Registration for industrial designs, trademarks, official marks or integrated circuit topographies	29
Filing of applications for plant breeders' rights	7
Executing non-disclosure or confidentiality agreements	64
Administration of material transferred agreements inbound	48
Administration of material transferred agreements outbound	44
Other	3

Note(s): Based on the questionnaires received representing **112** responding institutions. Institutions: Educational institutions.

Table 11-1
Intellectual property resulting in protection activity and new intellectual property disclosed during 2008

	New intellectual property	Intellectual property protected
	number	
Inventions	1,613	820
Intellectual property protected by copyright	361	19
Industrial designs, trademarks, official marks and new plant varieties	203	42
Other	53	43

Note(s): Based on the questionnaires received representing **125** responding institutions.

Table 11-2
Intellectual property resulting in protection activity and new intellectual property disclosed during 2007

	New intellectual property	Intellectual property protected
	number	
Inventions	1,357	668
Intellectual property protected by copyright	2,038	28
Industrial designs, trademarks, official marks and new plant varieties	x	23
Other	68	1

Note(s): Based on the questionnaires received representing **112** responding institutions.

Table 12-1
Patent status — 2008

	Patent applications				Patents issued
	Initiating	Follow-on	Unclassified	Total	Total
	number				
Total	**755**	**1,036**	**...**	**1,791**	**346**

Note(s): Based on the questionnaires received representing **125** responding institutions. Unclassified: Respondents provided totals but were unable to break down components as requested. For international patent applications the parent Patent Cooperation Treaty (PCT) is counted as one application and each entry into national phase as one application.

Table 12-2
Patent status — 2007

	Patent applications				Patents issued
	Initiating	Follow-on	Unclassified	Total	Total
	number				
Total	**807**	**820**	**7**	**1,634**	**479**

Note(s): Based on the questionnaires received representing **112** responding institutions. Unclassified: Respondents provided totals but were unable to break down components as requested. For international patent applications the parent Patent Cooperation Treaty (PCT) is counted as one application and each entry into national phase as one application.

Table 13-1
Patents held and commercialized — 2008

	Canada	United States	Other countries	Total
	number			
Total patents held at the end of 2008, including patents issued that year	**779**	**2,481**	**2,648**	**5,908**
For institutions that licensed, assigned or commercialized at least one patent this year:				
Total patents held, including patents issued at the end of 2008	531	1,411	1,588	**3,704**
Number of patents licensed, assigned or otherwise commercialized at the end of 2008	185	478	773	**1,436**

Note(s): Based on the questionnaires received representing **125** responding institutions.

Table 13-2
Patents held and commercialized — 2007

	Canada	United States	Other countries	Total
	number			
Total patents held at the end of 2007, including patents issued that year	**415**	**1,709**	**2,061**	**4,185**
For institutions that licensed, assigned or commercialized at least one patent this year:				
Total patents held, including patents issued at the end of 2007	286	946	1,002	**2,234**
Number of patents licensed, assigned or otherwise commercialized at the end of 2007	124	367	652	**1,143**

Note(s): Based on the questionnaires received representing **112** responding institutions.

Table 14-1
Licenses and options — 2008

	Exclusive and sole licenses	Non-exclusive licenses	Unclassified	Total
	number			
Total new licenses	**226**	**298**	**…**	**524**
Total new licenses executed with Canadian licensees	136	104	…	**240**
Total new licenses executed with foreign licensees	65	182	…	**247**
Unclassified new licenses	25	12	…	**37**
Total active licenses	**1,530**	**1,813**	**…**	**3,343**
Total active licenses with Canadian licensees	965	502	…	**1,467**
Total active licenses with foreign licensees	420	1,274	…	**1,694**
Unclassified active licenses	145	37	…	**182**

Note(s): Based on the questionnaires received representing **125** responding institutions. Unclassified: Respondents provided totals but were unable to break down components as requested. Counts include stand-alone licenses and options only and exclude those embedded in research contracts and non-commercial (royalty free) licenses.

Table 14-2
Licenses and options — 2007

	Exclusive and sole licenses	Non-exclusive licenses	Unclassified	Total
	number			
Total new licenses	**187**	**351**	**0**	**538**
Total new licenses executed with Canadian licensees	120	109	0	**229**
Total new licenses executed with foreign licensees	57	129	0	**186**
Unclassified new licenses	10	113	0	**123**
Total active licenses	**1,043**	**1,435**	**201**	**2,679**
Total active licenses with Canadian licensees	753	250	7	**1,010**
Total active licenses with foreign licensees	290	803	2	**1,095**
Unclassified active licenses	0	382	192	**574**

Note(s): Based on the questionnaires received representing **112** responding institutions. Unclassified: Respondents provided totals but were unable to break down components as requested. Counts include stand-alone licenses and options only and exclude those embedded in research contracts and non-commercial (royalty free) licenses.

Table 15-1
Income received from intellectual property — 2008

	Total
	thousands of dollars
Total	**53,183**
Running royalties	**35,374**
Milestone payments	**4,681**
From one time sales of intellectual property	**3,080**
Reimbursement of patent, legal and related costs	**5,889**
License income received from another Canadian institution under a revenue-sharing agreement	**125**
Other	**4,034**

Note(s): Based on the questionnaires received representing **125** responding institutions.

Table 15-2
Income received from intellectual property — 2007

	Total
	thousands of dollars
Total	**52,477**
Running royalties	**37,341**
Milestone payments	**3,423**
From one time sales of intellectual property	**x**
Reimbursement of patent, legal and related costs	**4,216**
License income received from another Canadian institution under a revenue-sharing agreement	**x**
Other	**5,181**

Note(s): Based on the questionnaires received representing **112** responding institutions.

Table 16-1
Spin-off companies, purpose and link to institution — 2008

	Spin-off companies	
	number	percent
Total	**1,242**	**100**
License [1]	476	38
Research and development [2]	141	11
Service [3]	44	4
License and research and development	53	4
Other	34	3
Not stated	494	40

1. Obtain a license to utilize the institution's technology.
2. Fund research at the institution in order to develop technology that will be licensed by the company.
3. Provide a service that was originally offered through a department or unit of the institution.

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Table 16-2
Spin-off companies, purpose and link to institution — 2007

	Spin-off companies	
	number	percent
Total	**1,174**	**100**
License [1]	453	39
Research and development [2]	137	12
Service [3]	39	3
License and research and development	52	4
Other	32	3
Not stated	461	39

1. Obtain a license to utilize the institution's technology.
2. Fund research at the institution in order to develop technology that will be licensed by the company.
3. Provide a service that was originally offered through a department or unit of the institution.

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Table 17-1
Year of incorporation of spin-off companies — 2008

	Spin-off companies	
	number	percent
Total	**1,242**	**100**
Before 1980	45	4
1980 to 1984	64	5
1985 to 1989	92	7
1990 to 1994	181	15
1995 to 1999	359	29
2000 to 2004	312	25
2005 to 2006	73	6
2007	50	4
2008	19	2
Not stated	47	4

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Table 17-2
Year of incorporation of spin-off companies — 2007

	Spin-off companies	
	number	percent
Total	**1,174**	**100**
Before 1980	45	4
1980 to 1984	64	5
1985 to 1989	92	8
1990 to 1994	181	15
1995 to 1999	358	30
2000 to 2004	302	26
2005	31	3
2006	29	2
2007	24	2
Not stated	48	4

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Table 18-1
Dividends, equity disposition, remaining equity and venture capital investment of spin-off companies — 2008

	Spin-off companies
	thousands of dollars
Cash dividends received by institutions	x
Equity holdings, options and warrants disposed of by institutions	3,381
Remaining equity held by the institutions in publicly traded spin-offs	37,821
Investment in spin-offs raised with the assistance of the institution	22,762

Note(s): Based on the questionnaires received representing **125** responding institutions. Institutions: Educational institutions.

Table 18-2
Dividends, equity disposition, remaining equity and venture capital investment of spin-off companies — 2007

	Spin-off companies
	thousands of dollars
Cash dividends received by institutions	x
Equity holdings, options and warrants disposed of by institutions	3,712 r
Remaining equity held by the institutions in publicly traded spin-offs	34,754
Investment in spin-offs raised with the assistance of the institution	5,884

Note(s): Based on the questionnaires received representing **112** responding institutions. Institutions: Educational institutions.

Table 19-1
Regional differences in intellectual property commercialization, part 1 — 2008

	Sponsored research [1]	Income from intellectual property	Expenditures on intellectual property management	Research contracts	Responding institutions
	millions of dollars				number
Total Canada	**4,876**	**53**	**51**	**1,971**	**125**
Atlantic	303	1	4	86	16
Quebec	1,430	20	10	190	32
Ontario	1,551	16	20	604	43
Prairies	902	7	7	579	18
British Columbia	690	9	10	512	16
	percent				
Total Canada	**100**	**100**	**100**	**100**	**100**
Atlantic	6	2	8	4	13
Quebec	29	37	20	10	26
Ontario	32	30	40	31	34
Prairies	19	13	13	29	14
British Columbia	14	17	19	26	13

1. Values for sponsored research are taken from the Canadian Association of University Business Officers (CAUBOS)'s Report 3.1 of *Financial Information of Universities and Colleges* for the fiscal year ended 2008.

Note(s): Based on the questionnaires received representing **125** responding institutions. Institutions: Educational institutions. Atlantic: Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick. Prairies: Manitoba, Saskatchewan and Alberta. Components may not add to total due to rounding.

Table 19-2
Regional differences in intellectual property commercialization, part 1 — 2007

	Sponsored research [1]	Income from intellectual property	Expenditures on intellectual property management	Research contracts	Responding institutions
	millions of dollars				number
Total Canada	**5,073**	**52**	**42**	**1,274** r	**112**
Atlantic	292	1	4	109	22
Quebec	1,027	19	8	130	33
Ontario	2,360	11	15	451 r	36
Prairies	810	5	6	x	13
British Columbia	584	16	9	x	8
	percent				
Total Canada	**100**	**100**	**100**	**100**	**100**
Atlantic	6	2	10	9	20
Quebec	20	37	19	10	29
Ontario	47	21	36	35 r	32
Prairies	16	10	14	x	12
British Columbia	12	31	21	x	7

1. Values for sponsored research are taken from the Canadian Association of University Business Officers (CAUBOS)'s Report 3.1 of *Financial Information of Universities and Colleges* for the fiscal year ended 2007.

Note(s): Based on the questionnaires received representing **112** responding institutions. Institutions: Educational institutions. Atlantic: Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick. Prairies: Manitoba, Saskatchewan and Alberta. Components may not add to total due to rounding.

Table 20-1
Regional differences in intellectual property commercialization, part 2 — 2008

	Inventions disclosed	Inventions protected	Patent applications filed	Total patents issued	Total patents held	Inventions declined	New licenses and options	Active licenses and options	Spin-off companies created to date[1]	Responding institutions
	number									
Total Canada	**1,613**	**820**	**1,791**	**346**	**5,908**	**492**	**524**	**3,343**	**1,242**	**125**
Atlantic	78	35	x	8	103	40	18	x	93	16
Quebec	314	247	479	95	1,739	73	76	813	201	32
Ontario	720	231	597	102	1,745	205	296	1,619	479	43
Prairies	196	187	340	77	863	65	78	x	202	18
British Columbia	305	120	x	64	1,458	109	56	434	267	16
	percent									
Total Canada	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Atlantic	5	4	x	2	2	8	3	x	7	13
Quebec	19	30	27	27	29	15	15	24	16	26
Ontario	45	28	33	29	30	42	56	48	39	34
Prairies	12	23	19	22	15	13	15	x	16	14
British Columbia	19	15	x	18	25	22	11	13	21	13

1. These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated).

Note(s): Based on the questionnaires received representing **125** responding institutions. Institutions: Educational institutions. Atlantic: Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick. Prairies: Manitoba, Saskatchewan and Alberta. Components may not add to total due to rounding.

Table 20-2
Regional differences in intellectual property commercialization, part 2 — 2007

	Inventions disclosed	Inventions protected	Patent applications filed	Total patents issued	Total patents held	Inventions declined	New licenses and options	Active licenses and options	Spin-off companies created to date[1]	Responding institutions
	number									
Total Canada	**1,357**	**668**	**1,634**	**479**	**4,185**	**333**	**538**	**2,679**	**1,174**	**112**
Atlantic	82	47	42	x	x	x	x	31	88	22
Quebec	262	145	503	147	1,304	61	91	766	190	33
Ontario	509	183	494	88	854	97	244	780	445	36
Prairies	207	112	248	175	x	x	44	383	193	13
British Columbia	297	181	347	x	1,274	124	x	719	258	8
	percent									
Total Canada	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Atlantic	6	7	3	x	x	x	x	1	7	20
Quebec	19	22	31	31	31	18	17	29	16	29
Ontario	38	27	30	18	20	29	45	29	38	32
Prairies	15	17	15	37	x	x	8	14	16	12
British Columbia	22	27	21	x	30	37	x	27	22	7

1. These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated).

Note(s): Based on the questionnaires received representing **112** responding institutions. Institutions: Educational institutions. Atlantic: Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick. Prairies: Manitoba, Saskatchewan and Alberta. Components may not add to total due to rounding.

Table 21-1
Spin-offs companies grouped by North American Industry Classification System (NAICS) — 2008

	Spin-off companies	
	number	percent
Total spin-offs	**1,242**	**100**
Service industries	667	54
Manufacturing industries	137	11
Wholesale trade	44	4
Other industries	21	2
Industry information not available	373	30

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Table 21-2
Spin-offs companies grouped by North American Industry Classification System (NAICS) — 2007

	Spin-off companies	
	number	percent
Total spin-offs	**1,174**	**100**
Service industries	651	55
Manufacturing industries	135	11
Wholesale trade	30	3
Other industries	32	3
Industry information not available	326	28

Note(s): These estimates represent an inventory of all spin-off companies reported by educational institutions since 1999, regardless of the status of those spin-offs over time (e.g. active, inactive, merged or amalgamated). Components may not add to total due to rounding.

Data quality, concepts and methodology

The universe is comprised of all members of the Association of Universities and Colleges of Canada (AUCC), as well as the university-affiliated research hospitals. The latter includes some members of the Association of Canadian Teaching Hospitals (ACTH) and some other hospitals reporting R&D activity on the Annual Hospital Survey.

This survey is a census with a cross-sectional design. Data are collected for all units of the target population, therefore no sampling is done.

Surveys are subject to certain types of errors: coverage, non-response, interpretation and processing errors. The methodology of this survey has been designed to minimize errors and to reduce their potential impact.

Because of significant variations observed between universities and hospitals on intellectual property issues, data from this survey are not weighted or imputed. Results are presented as gross results and only cover the respondent population.

Both micro and macro-editing are done. As questionnaires are returned, the information is captured onto a screen containing the previous response. This forces a comparison of the previous and current responses. As well, internal inconsistencies are noted and followed up by telephone.

The data are also compared against external public sources of information, such as university websites, the Association of University Technology Managers (AUTM) survey, the Canadian Association of University Business offices (CAUBO), annual reports, press releases and conference presentations.

There is no imputation of missing data for this survey except when additional information is available as a basis for imputation. One of the most common cases of missing data is where information is provided in aggregate form only and not broken down into the categories requested. This was only observed for a few questions. For some questions, historical data was used to break down the reported totals, while for others, the total was placed in the "other" category or in a new "unclassified" category. If there is absolutely no information available, the field is left blank and no imputation is done.

There were minor revisions to the survey questionnaire in 2008 in order to address data quality issues and response burden. Some of the detail requested was dropped while additional clarifications and improvements to the flow of certain questions were made where needed.

An analysis was carried out to ensure the quality of the data obtained in 2008. This analysis was based mainly on a comparison of the total estimates of certain variables of interest between 2006, 2007 and 2008. It also compared the total estimates for all respondents with those for regular respondents, i.e., those who responded the last three times. In short, the analysis provided for ensuring that the most important contributors to the previous surveys responded to the 2008 survey.

Response rates for 2008:

- 142 questionnaires mailed out
- 125 responding institutions (this includes combined reports)

Further details on the methodology of the survey can be found at: *http://www.statcan.ca/english/sdds/index.htm* (Survey record no. 4222).