

Research and Development in Canadian Industry, 2004

Reporting unit name and address

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Please correct any	mistakes in nar	me or address	_		^	Ø
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	NFORMATION	N FOR RESPONDENTS			1/1	
Survey objective This survey collects data which are essential to assu activities in Canada and to support the developmen research and development (R&D) incentive programthis survey will be published in "Industrial Research	t of science and s and to comple	I technology policy. Your dite national totals for scienti	ata will be used, fic R&D expendi	for instance, tures and per	to plan and eva sonnel. The resi	aluate
Authority This survey is conducted under the authority of the St	atistics Act. Rev	ised Statutes of Canada. 19	85. Chapter S19		\rangle	
Legal requirement	,	,	(())		
Organizations are required to provide this information			·			
Confidentiality Statistics Canada is prohibited from publishing any st the previous written consent of that organization. T purposes and published in aggregated form only.					organization wee, used for stat	
Federal/Provincial Agreements In order to avoid duplication of enquiry, to reduce the the Institut de la statistique du Quebec, under Sect activities in Quebec will be transmitted to the Institut confidentiality and penalties for disclosure of informat	ion 11 of the St it de la statistiqu	tatistics Act, Sharutes of Ca ue du Quebec. The Statisti	nada, where da	ta on firms lo	cated or having	R&D
Reporting period and coverage This questionnaire should be completed for the fisca	l year ending in	2004 This report should ex	xclude foreign op	perations. Plea	ase report all am	ounts
in Canadian currency. Please complete a separate questionnaire for each or	omnany nerform	ning R&D activities in Canad	······································			
If your records do not permit separate reporting, en	,	-\ \ \ \ /		erforming R&	D in Canada.	
● If your company performs R&D activities, all questi	\sim	(, ^				
• If your company does not perform but funds R&D, o	omplete questi	ions 2, 3, 4, 10, 11, 12, 13 ,	14 and certifica	tion.		
1. a) If your records do not permit separate reporting, list the name of the other companies performing R&D in Canada for which data will be included in questions 2 to 6 of this questionnaire, and indicate "YES" in column 2; these firms will be considered members of this reporting unit. b) If this reporting unit includes Canadan R&D activities performed in direct support of other Canadian						
a) If your records do not permit separate reporting included in questions 2 to 6 of this question pair. b) If this reporting unit includes Canadan R&D.	g, list the name e, and indicate " activities perform	e of the other companies YES" in column 2; these firm med in direct support of other	performing R&I ns will be conside ner Canadian	ered members	of this reporting	unit.
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1. a) If your records do not permit separate reporting included in questions 2 to 6 of this questionnaire. b) If this reporting unit includes Canadian R&D related firms (i.e. parent, subsidiaries) which companies and indicate "NO" in column 3. Name of companies (please print-full legal name 315 316 317 318 c) Latest fiscal year for which a claim for Scientific was filled with Canada Revenue Agency	g list the name and redicate "activities perform themselves do e and attach add e e e and attach add e e e and attach add e e e e e e e e e e e e e e e e e e	e of the other companies YES" in column 2; these firm the din direct support of other not perform R&D, list the ditional sheet if necessary) Experimental Development (Experimental Development (Barriage of the displayed of	performing R&Is will be consider a canadian use Canadian	Performs R&D YES or NO 533	of this reporting Indicate type affiliation with repunit (i.e. pare subsidiary or of subsi	of porting ent, ther)

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				DATA ON	R&D PER	FORMED	(quest	ions 5 to 8)				
5. PERSONNEL OF THIS REPORTING UNIT ENGAGED IN R&D (FULL-TIME EQUIVALENT*) (use rounded numbers only)												
	Professionals				Supporti	ng Staff*	Total					
				and engineer	_			&D administrat	ors Total	Technicians and techno-	Other	R&D
		Bachelors 082	Masters 083	084	Total	Bachelors 085	Master 086	Doctorates	Total	logists 088	089	personnel
	a) In 2004 For 2004, %				0/				0/			
	please indicate % of males and females F	<u>%</u>	% %	%		% %		% % % %	% %	% %	%	†
	b) Planned for 2004	70	70	,,,	76	70		70	76	70	,	7 /
*	See "Instruction Gu	ide"		l						Average wa	goo and a	olorios
**	Divide wages and sal	laries for 20	004 (Quest salaries d	ion 6b) by to do not seen	otal R&D pe n reasonab	rsonnel. <i>le, please</i>	review t	he data	-		ands of Ca	
6.	EXPENDITURES IN (2003 total R&D expe											^
			CURRENT	EXPENDI	TURES			CAPITAL EX	PENDITU	RES		
		Wage and sala		Other ent costs**	Total current	La	nd	Buildings	Equipme & Other		otal pital	Total
				,		(in t	housand	s of Cdn \$)		.(<i>, ()</i>
a)	Made in 2003	001	002			009		010	011		\bigcirc	
b)	Made in 2004	003	004			012		013	014			
c)	Planned for 2005	005	006			015		016	017			
d)	Forecast for 2006	007	800			018		019	020			
e)	If applicable, please development***	estimate	the perce	ntage of to	tal R&D ex	penditures	(reporte	ed above for	2004) aftril	outable to s	software	308 %
f)	If applicable, please	estimate th	e percenta	ge of total F	R&D expend	ditures (repo	orted abo	ove for 2004) a	ttributable	to biotechno		3 09 %
g)	If applicable, please treatment and reuse	e estimate to	the percents and was	tage of totates, and rec	al R&D exp luction of ma	enditures (aterial and	reported energy b	above for 20 se***	04) attribut	table to pre	vention,	31 4 %
h)	Are there important p				elated to the	R&D repo	ted for 2	2004		⁵³⁵ Ye	s ()	or No ()
i)	If applicable, please	•		-	al R&D exp	penditures	(repørte	d above for 2	004) attrib	utable to ac	dvanced	537
_	materials					1						%
**	Include fringe benefit Include contracts for				8&15 (e.g. cs	ontracts aw	arded fo	r drillina need	ed for heav	vv oil R&D).	Exclude of	contracts for
***	R&D work itself which	h should be	e reported	in question	710 & 11 E	xskide cap	ital dep	reciation.		,		
7.	REGIONAL INFORM	IATION FO	R R&D P	ERFORME	NIHTIW Q	THIS REP	ORTING	UNIT IN 20	04 (Exper	nditures sh	ould be i	reported in
	thousands of Cdn \$)		\bigcirc		\rangle							
			$\rightarrow \stackrel{\checkmark}{\sim}$	$\overline{}$	/	1		R&D e	xpenditures	<u>. </u>	R&D pe	rsonnel
	Re	gion where	DALD MOS	narformed			ber of &D	Current	Capit		essionals	Supporting
	T(C)		, Cashing	>			shments int) *	(in thousa	<u> </u>			staff uivalent**)
	Newfoundland an	d Labrador	\rightarrow					109	122	135		148
	Prince Edward Island	, 	/					110	123	136		149
	3. Nova Scotia	<u>Sind</u>						111	124	137		150
	4. New Brunswick							112	125	138		151
\langle	5. Quebec (excludin	g Montréal	area and N	National Car	oital Region)		113	126	139		152
`	6. Montréal metropo							114	127	140		153
	7. National Capital F Quebec (specify):							310	311	312	;	313
	Ontario (specify):							294	295	296	:	297
	8. Ontario (excluding	g Toronto a	rea and Na	ational Capi	tal Region)			115	128	141		154
	9. Toronto, metropol	litan area						116	129	142		155
	10. Manitoba							117	130	143		156
	11. Saskatchewan							118	131	144		157
	12. Alberta							119	132	145		158
	13. British Columbia							120	133	146		159
	14. Yukon, Northwest				<u>, </u>			121	134	147		160
	Total (equal to 2) reported in ques	tions 6b) a	nd 5a)	u personne								

- * Please complete Question 9 for each establishment identified above.
- ** See "Instruction Guide" for areas covered in the National Capital Region.

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	Canadian sources	No Cana
Reporting unit funding (include also funds from companies listed in question 1a)	021	022
(i) Please indicate % of a) which were provided by venture capital firms	%	
Parent, affiliated and subsidiary companies (only those not included in question 8a).		
Name of companies (please print full legal name and attach additional sheet if necessary.)		
325	335	345
326	336	346
327	337	347
328	338	348
329	339	349
Sub-total (b)	023	024
	<u> </u>	
Canadian Federal Government:* (i) R&D grants and the R&D portion only of any other grants.		
		1/
Industry Canada: Technology Partnership Program National Passarch Council: Industrial Passarch Assistance Program		\
National Research Council: Industrial Research Assistance Program		\rangle \langle
Atlantic Canada Opportunities Agency	(ľ
Canada Economic Development (Quebec Regions) Western Economic Diversification Office	}\\	
	}	
	 	
(specify): Sub-total (c (i))	027	
Sub-total (C(I))	027	
(ii) R&D contracts and the R&D portion only of any other contracts.	- i	
Contracting departments: (Payments are often made through Public Works and Government Services Canada for other departments; please specify contracting department)	5	
Canadian Space Agency	_	
National Defence	-	
\(\frac{\lambda}{\lambda}\)	+	
	026	
Sub-total/c (ii))	020	
Provincial government:* (specify province):		
(specify province):		
(specify province): (specify province):	291	
(specify province):	291	
(specify province): (specify province):	291	
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies	291	
(specify province): (specify province): Sub-total (d) R&D contract work for other companies	291	375
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.)		375 376
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal game and attach additional sheet if necessary.) 355	365	
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal game and attach additional sheet if necessary.) 355 356 357	365 366 367	376 377
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal game and attach additional sheet if necessary.) 355 356 357	365 366 367 368	376 377 378
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal garage and attach additional sheet if necessary.) 355 356 357	365 366 367 368 369	376 377 378 379
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 360	365 366 367 368 369 370	376 377 378 379 380
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 360 361	365 366 367 368 369 370	376 377 378 379 380 381
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal game and attach additional sheet if necessary.) 355 356 357 358 369 260	365 366 367 368 369 370 371	376 377 378 379 380 381 382
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies Name of companies Name of companies 355 356 357 358 360 361 362 363	365 366 367 368 369 370 371 372	376 377 378 379 380 381 382 383
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal game and attach additional sheet if necessary.) 355 356 357 358 369 260	365 366 367 368 369 370 371 372 373	376 377 378 379 380 381 382 383
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies Name of companies Name of companies 355 356 357 358 360 361 362 363	365 366 367 368 369 370 371 372	376 377 378 379 380 381 382 383
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 360 361 362 363	365 366 367 368 369 370 371 372 373	376 377 378 379 380 381 382 383
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 361 362 363 364 Sub-total (e)	365 366 367 368 369 370 371 372 373	376 377 378 379 380 381 382 383
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 369 360 361 362 363 364 Sub-total (e)	365 366 367 368 369 370 371 372 373 374	376 377 378 379 380 381 382 383 384 029
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 361 362 363 364 Sub-total (e)	365 366 367 368 369 370 371 372 373 374	376 377 378 379 380 381 382 383 384 029
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(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 362 362 363 364 Sub-total (e) Others (i.e. universities, foreign government) (specify):	365 366 367 368 369 370 371 372 373 374	376 377 378 379 380 381 382 383 384 029
(specify province): (specify province): Sub-total (d) R&D contract work for other companies Name of companies (please print full legal name and attach additional sheet if necessary.) 355 356 357 358 362 362 363 364 Sub-total (e) Others (i.e. universities, foreign government) (specify):	365 366 367 368 369 370 371 372 373 374	376 377 378 379 380 381 382 383 384 029

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		N	ATURE OF R	&D ACTIVITIES – 2003	(question 9)				
				establishment (previously complete for each R&D e		uestion 7). If yo	ou have more th	nan one	
	R&D Establis R&D establishment:	hment No	(i	.e. 1, 2, 3, etc.)					
, tamo o	Tab completion								
Address	of R&D establishmer	nt:							
		Street				City			
0		Province				Postal code			
Contact:									
		Na	me						
		Positio	on tittle			()			
		1 031110	on titue			Te	elephone no.))	
1. What w	vere the current (non-	-capital) R&D E	xpenditures of th	nis R&D establishment in 20	004?		(in thousands of C	Cdn \$)	
				uld equal the total of cells 0		estion (6)	(full time equival	lent)	
				ere employed in this R&D e			(idii tiirie equivai	enty	
3. Please	estimate, in terms of			R&D expenditures, the ap	$ \langle c \rangle$	\			
your R	&D effort in 2004:			۰		>			
Λ Ra	sic research (no spec	cific practical ap	nlication in view	,			%		
A. Da	sic research (no spec	Silic practical ap	plication in view)			%		
В. Ар	plied research (with a	a specific praction	cal application in	view)	<u> </u>				
C. Ne	w * product developn	nent						%	
D. E.:	-4: * d4 :		_<					%	
D. EX	sting * product impro	vement						%	
E. Ne	w * process developr	ment		\rightarrow					
F. Exi	sting * process impro	ovement \swarrow	$\langle \bigcup \rangle$					%	
			\searrow				%		
G. Ne	w * technical service	s dévelopment	-					%	
H₃. Exi	sting * technical serv	vices improveme	ent						
								100%	
1h	e ploduct. Pročesš or	r service máv ex	ist elsewhere in	funknown to the personnel of the world but your R&D is a ecessary to avoid any of the	not aided by this	fact since			
/ /de	∕èlopment. Existina	would mean tha	t vour staff woul	d be improving a product/pi ervice need not already be	rocess/service al	bout which			
	\								
,	,	YOUR ENTER	PRISE INVOLVI	ED IN A COOPERATIVE/C	OLLABORATIV	E ARRANGEMEN	T FOR R&D?		
() N	o			the following reason(s) were ve/collaborative arrangeme			vement		
	Partners	Affiliated	Other	Canadian research	Canadian	Foreign	Other types		
Reas	son	Canadian Enterprise	Canadian Enterprises	institutes and Canadian Universities	Federal Government	Organizations	of partners		
	nare financial and bility risk	0	0	0	0	0	0		
	ss to specialized an resources	0	0	0	0	0	0		
	ss to specialized oment	0	0	0	0	0	0		

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		DATA ON PAYMENTS FOR R&D (questions 10 and 11)		
		YMENTS FOR R&D PERFORMED BY OTHER ORGANIZATIONS*		
		03 should equal the total of question 11.) (in thousands of Cdn \$)		
		Made in 2003		038
	<u>.</u>	Made in 2004		039 040
		Planned for 2005		040
	u)	Forecast for 2006		041
		CIPIENTS OF PAYMENTS* FOR R&D PERFORMED IN 2003 BY OTHER ORGANIZATIONS thousands of Cdn \$)	In Canada	Outside Canada
	a)	Parent, affiliated and subsidiary companies		
	•	Other companies		
	c)	Private non-profit organizations		
	d)	Industrial research institutes or associations		
	e)	Hospitals		7
1	F)	Universities		
	g)	Provincial research organizations	$\overline{\rangle}$	
	h)	Other (eg: Individuals, Non-University Educational Institutions, Governments)	\rightarrow	
		Total of items 11a) to 11h)		
		Total (equal to 2004 figure entered in question 10b)	\> [●
		* Payments made outside Canada should be reported net of withholding taxes.		
		DATA ON OTHER PAYMENTS MADE OR RECEIVED FOR TECHNOLOGY (questio	n 12)	
Λ.	000	npany can acquire information based on R&D performed in the past by other companies, organizations or indiv	iduala Similarl	v it oon ooll
info	rn	nation based on R&D it has performed in the past. In the preceding section payments are reported for the suppor		
bei	ng	done. In this section, consider only payments for information and rights derived from R&D performed in the past.		
		YMENTS MADE OR RECEIVED IN 2004 BY THIS REPORTING UNIT FOR PATENTS		
		NLE/PURCHASE, LICENSING) KNOW-HOW (UNPATENTED),\ TNYENTIONS, TRADEMARKS CLUDING FRANCHISING), PATTERNS, DESIGN, AND F&D (TEXHINCAL ASSISTANCE*		<u> </u>
(in	thousands of Cdn \$)	In Canada	Outside Canada
			101	103
i	a)	Payments to parent, affiliated and/or subsidiary companies		
		() () () () () () () () () ()	102	104
		to other organizations and/or individuals	062	063
		Total		
		* Payments made outside Canada should be reported net of withholding taxes.		
	b)	Receipts	105	107
		from parent, atfiliated and/or subsidiary companies	106	108
/	/	from other organizations and/or individuals		
		Total	064	065
	\			
		SURVEY COMPLETION TIME (question 13)		
12 /		DROVIMATELY LIGHT MANY LIGHTS BID YOU SPEND COLLECTING THE DATA AND COMPLETING THE OL	IECTIONINAID:	
13. 4	AP.	PROXIMATELY HOW MANY HOURS DID YOU SPEND COLLECTING THE DATA AND COMPLETING THE QU	JES I IONNAIRI	Ef
(\supset	Less than 1 hour 2 – 5 hours 010 – 20 hours 0 More than 40 hours		
($\overline{}$	1 – 2 hours		
	_	0.1 1.1.1.1.1		
	Į	DATA ON ENERGY R&D (question 14)		
14. į	N 2	2004, DID THIS REPORTING UNIT PERFORM OR FUND ANY ENERGY R&D?		
(\subset	Yes Please complete the enclosed "Energy R&D expenditures by area of technology" (green) questions are a second technology.	ionnaire.	
()	No Please complete certification on page 2 and return questionnaires.		

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COMMENTS	
DMMENTS: Reasons for Major Changes in Reported Expenditures and Personnel – In o tween this report and your last return (2003) please explain any significant changes which	rder to eliminate the necessity to verify discrepar
tween this report and your last return (2003) please explain any significant changes which	n might be misconstrued as an error in reporting.
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The results of this survey will be published in
"Industrial Research and Development" (Cat. No. 88-202-XIE) and "Science Statistics" (Cat. No. 88-001-XIE).
http://www.statcan.ca/english/IPS/Data/88-001-XIE.htm
http://www.statcan.ca/english/IPS/Data/88-202-XIE.htm

THANK YOU FOR YOUR CO-OPERATION



Research and Development in Canadian Industry



INSTRUCTION GUIDE RESEARCH AND DEVELOPMENT IN CANADIAN INDUSTRY

- 1. This survey has been carried out since 1955; you may have file copies of your returns for earlier years which will help you now. If you are filing a consolidated return for two or more related companies please ensure that consolidated figures are used for all questions (e.g. revenues, employment, R&D expenditures, technology payments). "This reporting unit", as used in the questionnaire, covers groups of related companies when a consolidated return is filed.
- 2. Please answer all questions. Your best estimates are satisfactory when precise figures are not available. Your estimates will be better than ours.
- 3. Please return the completed questionnaire within 30 days of receipt. If you are unable to do so, please inform us of the expected completion date. If you receive more than one copy of this survey questionnaire for the same business, please complete one and attach and return the duplicate(s). If you require assistance in the completion of this questionnaire or have any questions regarding the survey please address all enquiries to:

Science and Innovation Surveys Section Science, Innovation and Electronic Information Division Statistics Canada Ottawa, Ontario K1A OT6

Telephone (613) 951-9662 (call collect) FAX (613) 951-9920

R&D Definition (equivalent to Canada Customs and Revenue Agency - see information Circular 86-4R3)

Research and development (R&D) is systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis to achieve a scientific or technological advance.

Research is original investigation undertaken on a systematic basis to gain new knowledge.

Development is the application of research findings or other scientific knowledge for the creation of new or significantly improved products or processes. If successful, development will usually result in devices or processes which represent an improvement in the "state of the art" and are likely to be patentable.

Research and development should be considered to be "Scientific Research and Experimental Development" as defined in Section 37, Regulation 2900 of the Income Tax Act; this section specifically excluded the following:

- (i) market research, sales promotion,
- (ii) quality control or routine analysis and testing of materials, devices or products
- (iii) research in the social sciences or the humanities,
- (iv) prospecting, exploring or drilling for or producing minerals, petroleum or natural gas,
- (v) the commercial production of a new or improved material device or product or the commercial use of a new or improved process,
- (vi) style changes, or routine data collection.

Example:

The investigation of electrical conduction is crystals was research. The application of this knowledge to the creation of a new amplifying device the transistor - was development. The application of the device to the construction of new electrical circuits for television receivers was development. The formulation of new plastic bases for a television receiver is design, not development.

Research and development have be carried out either by a permanent R&D unit (e.g., R&D division) or by a unit generally engaged in any non-R&D activity such as engineering or production. In the first case, the R&D unit may spend part of its time on routine testing or trouble shooting or on some other activities which should not be included in R&D. In the second, only the R&D portion of such units' total activity should be considered.

Note:

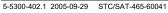
Although the definition of "Scientific Research and Experimental Development" is considered to be the same as R&D, certain expenditures for scientific research and experimental development cannot be claimed for income tax purposes (e.g., land and buildings). All expenditures attributable to R&D are included in this report.

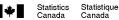
Interpretation

Generally speaking, industrial R&D is intended to result in an invention which may subsequently become a technological innovation. An essential requirement is that the outcome of the work is uncertain, i.e., that the possibility of obtaining a given technical objective cannot be known in advance on the basis of current knowledge or experience. Hence much of the work done by scientists and engineers is not R&D, since they are primarily engaged in "routine" production, engineering, quality control or testing. Although they apply scientific or engineering principles their work is not directed towards the discovery of new knowledge or the development of new products and processes. However, work elements which are not considered R&D by themselves but which directly support R&D projects, should be included with R&D in these cases. Examples of such work elements are design and engineering, shop work, computer programming, and secretarial work.

If the primary objective is to make further technical improvements to the product or process, then the work comes within the definition of R&D. If however, the product, process or approach is substantially set and the primary objective is to develop markets, to do pre-production planning or to get a production, or control system working smoothly, then the activity can no longer be considered as part of R&D even though it could be regarded as an important part of the total innovation process. Thus, the design, construction and testing of prototypes, models and pilot plants are part of R&D. But when necessary modifications have been made and testing has been satisfactorily completed, the boundary of R&D has been reached. Hence, the costs of tooling (design and try-out), construction drawings and manufacturing blueprints, and production start-up are not included in development costs.

Pilot plants may be included in development only if the main purpose is to acquire experience and compile data. As soon as they begin operating as normal production units, their costs can no longer be attributed to R&D. Similarly, once the original prototype has been found satisfactory, the costs of other "prototypes" built to meet a special need or fill a very small order are not to be considered as part of R&D.









ITEM	TREATMENT	REMARKS
Economic research, market research, management studies	Exclude	All activities in the social sciences.
Quality control, routine testing, style changes, minor adaptation of a product to meet a customer's specific requirements	Exclude	Even if carried out by staff normally engaged in R&D
Prospecting, exploratory drilling, development of mines, oil or gas wells	Exclude	Except for R&D projects concerned with new equipment or techniques in these activities, such as in-situ and tertiary recovery research.
Engineering	Exclude	Engineering unless it is in direct support of R&D
Design and drawing	Exclude	Design and drawing unless it is in direct support of R&D.
Prototypes, pilot plants	Include	As long as the primary objective is to make further improvements.
Contracts (questions 8(c)(ii) and 8(e))	Include	All contracts which require R&D. For contracts which include other work, report only the R&D costs.
Tooling up, trial production, trouble shooting	Exclude	Although R&D may be required as a result of these steps.
Patent and licence work	Exclude	All administrative and legal work connected with patents and licences.

Question 3 - Revenues in Canada - Represents the amount of revenues (in Canada) resulting from the sale of products and services after deducting sales and excise taxes), and other revenues such as those generated from investment and rental. All goods soft include consignments shipped outside Canada. Revenues should be reported in Canadian currency.

Question 5 - Full-time Equivalent (FTE) - R&D may be carried out by persons who work solely on R&D projects or by persons who devote only part of their time to R&D, and the balance to other activities such as testing, quality control and production engineering. To arrive at the total effort devoted to R&D in terms of manpower, it is necessary to estimate the full-time equivalent of these persons working only part-time in R&D.

FTE = Number of persons who work solely on R&D projects + the estimate of time of persons working only part of their time on R&D.

Example calculation: If out of five scientists engaged in R&D work, one works solely on R&D projects and the remaining four devote only one quarter of their working time to R&D, then: FTE = 1 + 1/4 + 1/4 + 1/4 + 1/4 = 2 scientists.

Question 5 - Supporting Staff

Technicians and technologists - Technically trained personnel who assist scientists and engineers in R&D, e.g. chemical technicians, draftspersons. They may be certified by either provincial educational authorities or by provincial or pational scientific or engineering associations.

Others - Personnel directly engaged in the R&D program, e.g. machinists and electricians in construction of prototypes, or clerks, typists, accountants and storekeepers engaged in the administration or clerical support of R&D units.

Question 6 (e) - Software Development - Software refers to the encoded instructions executed by electronic devices including computers for

Question 6 (e) - Software Development - Software refers to the encoded instruction's executed by electronic devices including computers for performing operations and functions. See CCRA's Information Circular 97-1 Administrative Guidelines for Software Development".

Question 6 (f) - Biotechnology - Biotechnology is defined as "The application of knowledge, goods and services." Eg. DNA genomics, pharmaco-genetics gene probes, DNA sequencing/synthesis/amplification, genetic engineering, Protein/peptide sequencing/synthesis, lipid/protein engineering, proteomics, hormones and growth factors, cell receptors/signalling/pheromones. Celf & tissue culture, tissue engineering, hybridisation, cellular fusion, vaccine/immune stimulants, embryo manipulation, bioreadors, termentation, bioprocessing, bioleaching, biopulping, bio-bleaching, biodesulphurization, bioremediation, and biofiltration, gene therapy, what vectors, bioinformatics.

Question 6 (g) - Environmental Protection - Environmental protection is defined as the field of work devoted to the reduction or elimination of pollutants and wastes (including prevention, treatment and values of pollutants and wastes, and reduction of material and energy use). Expanditures

Question 6 (g) - Environmental Protection - Environmental Protection is defined as the field of work devoted to the reduction of elimination of pollutants and wastes (including prevention, treatment and reuse of pollutants and wastes, and reduction of material and energy use). Expenditures made in order to improve employee health and workplace safety are excluded.

Question 6 (h) - Environmental benefits - Environment

Question 6 (i) - R&D in advanced materials - R&D in advanced materials is defined as the systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis in order to gain new knowledge and create new or significantly improved products or processes which use advanced naterials such as metals (including superalloys or high purity metals), ceramics and carbon (including optoelectronics such as optical tipes and barbon and graphite products) and polymers (including high performance reinforced plastics and other high performance polymers).

Question 7 - Areas covered in the National Capital Region

	\ \				
Alcove (QC)	Constance Bay (ON)	Gloucester (ON)	Larrimac (QC)	Orleans (ON)	Ste-Cécile-de-Masham (QC
Almonte (QN)	Corkery (ON)	Greely (ON)	Leitrim (ON)	Osgoode (ON)	Sarsfield (ON)
Angers (QC)	cousineau (QC)	Halverson (QC)	Leonard (ON)	Ottawa (ON)	Shirley's Bay (ON)
Antrin (ON)	Cumberland (ON)	Harwood Plains (ON)	Limbour (QC)	Pakenham (ON)	South Gloucester (ON)
Appleton (ØN)	Dalmeny (ON)	Hazeldean (ON)	Lucerne (QC)	Pamure (ON)	South March (ON)
Ashton (ON)	Davidson Corner (QC)	Herbert Corners (ON)	Luskville (QC)	Patterson (QC)	Spring Hill (ON)
Aylmer (QC)	Deschênes (QC)	Heyworth (QC)	MacLarens Landing (ON)	Perkins (ON)	Stapledon (ON)
Barrhaven (ON)	Dirleton (ON)	Holland Mills (QC)	Malwood (ON)	Pointe-Gatineau (QC)	Stanley Corners (ON)
Baxters Corner (ON)	Duclos (QC)	Hull (QC)	Manion Corners (ON)	Poltimore (QC)	Steel (QC)
Bearbrook (ON)	Dunrobin (ON)	Huntley (ON)	Manotick (ON)	Poupore (QC)	Stittsville (ON)
Beech Grove (QC)	Dwyer Hill (ON)	Ironside (QC)	Mansfield (ON)	Quinnville (QC)	Strathearn (ON)
Bells Corners (ON)	Eardley (QC)	Jeanne-d'Arc (QC)	Marathon (ON)	Quyon (QC)	Tenaga (QC)
Blackburn Hamlet (ON)	Edwards (ON)	Jockvale (ON)	Marchhurst (ON)	Ramsayville (ON)	Twin Elm (ON)
Blakeney (ON)	Elm (ON)	Johnston Corners (ON)	Marvelville (ON)	Reevecraig (ON)	Val-des-Monts (QC)
Breckenridge (QC)	Embrun (ON)	Kanata (ON)	Masson (QC)	Ribot (QC)	Val-du-Lac (QC)
Brisson (ON)	Fallowfield (ON)	Kars (ON)	Merivale (ON)	Richmond (ON)	Val-Paquin (QC)
Buckingham (QC)	Farm Point (QC)	Kenmore (ON)	Metcalfe (ON)	Rideau (ON)	Vanier (ON)
Burnet (QC)	Fitzroy Harbour (ON)	Kilmaurs (ON)	Mohr Corners (ON)	Rupert (QC)	Vars (ON)
Cantley (QC)	French Hill (ON)	Kinburn (ON)	Munster (ON)	Russell (ON)	Wakefield (QC)
Carlsbad Springs (ON)	Galetta (ON)	Kirks Ferry (QC)	Navan (ON)	Ruthledge (QC)	Watterson Corners (ON)
Carp (ON)	Gatineau (QC)	La Pêche (QC)	Nepean (ON)	St-François-de-Masham (QC)	Wilson's-Corners (QC)
Carsonby (ON)	Glen Almond (QC)	Lac-des-Loups (QC)	North Gower (ON)	St-Louis-de-Masham (QC)	Woodlawn (ON)
Cascades (QC)	Glencairn (ON)	Lac-McGregor (QC)	North Onslow (QC)	St-Onge (ON)	Woodridge (ON)
Chelsea (QC)	Gleneagle (QC)	Lascelles (QC)	Old Chelsea (QC)	St-Pierre-De-Wakefield (QC)	Wyman (QC)
			Onslow Corners (QC)		