

Name of collection: *Survey of Information Technology Occupations*

<p>Nature of collection If possible, use the classification of collection types shown above e.g. <i>ICT use collection – business</i>. For “other” collections, provide details e.g. <i>Other ICT collection – ISPs</i>.</p>	<p>Other ICT collection – Information Technology Occupations</p>
<p>Collection agency</p>	<p>Statistics Canada http://www.statcan.ca</p>
<p>General references to collection material Metadata, questionnaires etc</p>	<p>For more information see the survey notes</p> <p>Questionnaires:</p> <p>National Survey of Information Technology Occupations, Employee Survey (Public Sector)</p> <p>National Survey of Information Technology Occupations, Employee Survey</p> <p>National Survey of Information Technology Occupations, Employer Survey (Private Sector)</p> <p>National Survey of Information Technology Occupations, Employer Survey (Public Sector)</p>
<p>Survey basis or vehicle E.g. Labour Force supplement, standalone survey, administrative byproduct data</p>	<p>Stand alone survey</p>
<p>Frequency of collection</p>	<p>Occasional</p>
<p>Collection history Reference dates and/or periods from the first to the latest collection</p>	<p>A pilot survey was conducted for reference year 2000.</p> <p>Full survey in 2002.</p>
<p>Whether collection is mandatory or voluntary</p>	<p>Voluntary</p>
<p>Scope and coverage of collection Target population in terms of size, industry, population groups etc</p>	<p>For the private sector, the target population is limited to locations on Statistics Canada's Business Register (BR), with at least six employees and are operating in the computer and electronic product manufacturing industry (NAICS-3 code=334), the information and cultural industries (NAICS-2 code=51), finance and insurance (NAICS-2 code=52) and professional, scientific and technical services (NAICS-2 code=54) coded to five specific industry categories (classified to the North American Industrial Classification System (NAICS)) All Canada was covered by ten provinces, a territory group and seven census metropolitan areas (CMAs). The locations must employ workers in at least one of the targeted IT occupations (classified to National Occupational Classification).</p> <p>Public sector:</p> <p>At the federal level, the target population is composed of all divisions of the 15 departments that employ the largest number of people in the CS group. Those 15 departments include 75% of federal public servants and 90% of employees in the CS category. At the provincial/territorial level, the ministries for each province and territory were</p>

	arranged in order from highest number of IT employees to lowest. They were selected from the top of the list down until the desired 90% coverage of IT employees was attained.
Main classifications used E.g. industry, size, commodity, occupation	North American Industry Classification System For more information on the North American Standard Classification, see NAICS National Occupational Classification. For more information see NOC-S . For a list of the occupations included see National Survey of Information Technology Occupations - List of Occupations
Collection methodology E.g. face-to-face, mail, Web, telephone interview	The employer survey uses the Computer Assisted Telephone Interview (CATI) and Electronic questionnaires (CD-ROM) with an electronic data return module. For the employee survey, a mail-back questionnaire and Electronic questionnaires (CD-ROM) with an electronic data return module was sent to employees.
Reporting and Statistical units Enterprise, establishment, household, etc	Locations (private sector) and divisions (public sector).
Sample frame used	For the private sector , the sampling frame of employers is approximated by a list of 55,981 locations on the Statistics Canada Business Register as of June 2002. The business register is kept up to date using administrative information on businesses received monthly from Canada Revenue Agency, as well as information from Statistics Canada surveys and business profiling activities. The target population of employees for the private sector is the workers in the 55,981 locations who are employed in the target IT occupations. The sampling frame is derived from the locations who responded to the employer survey. Employers are asked, at the end of the interview, whether they would be willing to allow Statistics Canada to survey their employees in the two randomly selected IT occupations on which they provided detailed information. Employees from the consenting employers become part of the sampling frame for the employee survey. For the public sector , at the federal level, the target population is composed of all divisions of the 15 departments that employ the largest number of people in the Information Systems and Information Technology (CS) group. Those 15 departments include 75% of federal public servants and 90% of employees in the CS category. The ministries for each province and territory were arranged in order from highest number of IT employees to lowest. They were selected from the top of the list down until the desired 90% coverage of IT employees was attained.
Sampling method E.g. stratified random sampling, cluster sampling	The NSITO uses a three-stage sampling plan. Stage 1 is the selection of locations (private sector) or divisions (public sector). In stage 2, a maximum of two occupations (out of 25) are selected for each location or division that responded in stage 1. In stage 3, a maximum of 10 employees are

	<p>sampled for each occupation selected in stage 2.</p> <p>For stage 1, stratified simple random sampling was used. For stage 2, a two-stage design was used.</p> <p>For the private sector, the locations were stratified on the basis of three components: size, region and industry code.</p> <p>For the public sector, each unit in the frame was classified as either take-some or take-all on the basis of the division's name. If the division had a strong likelihood of having IT employees, it was assigned to the take-all category. If not, it was placed in the take-some category.</p> <p>For each of the 10 provinces and for all three territories combined, two strata were created: one stratum containing units pre-identified as possibly having IT employees, and another stratum containing all other units. All strata containing the pre-identified units are take-all strata.</p> <p>For the federal government, four strata were created. The units were divided into two groups on the basis of whether they were located in the National Capital Region or not. Each group was then divided into two strata, as the provinces and territories were.</p> <p>For more information on the sampling methodology, see Chapter 3 of Methodology of the National Survey of Information Technology Occupations 2002</p>
<p>Sample size For the most recent collection</p>	<p>For employers:</p> <p>The private-sector sample size is 31,150 locations.</p> <p>The public sector sample size is 2,500 locations</p> <p>For employees:</p> <p>The private sector sample size is 15 039 employees.</p> <p>The public sector sample size is 2 716 employees.</p>
<p>Response rate The responding proportion of the live in-scope population, most recent collection</p>	<p>Stage 1:</p> <p>Private sector: 48% of units responded</p> <p>Public sector: 62% of units responded</p> <p>Stage 3:</p> <p>Private sector: 25% of employees responded</p> <p>Public sector: 37% of employees responded</p>
<p>Methods for dealing with non-response (item and unit) Indicate whether imputations are made for non-response and a short description of methods used.</p>	<p>For the employer survey, inconsistencies between the number of IT employees and its distribution lead to manual imputation of the numbers of employees.</p> <p>Other variables that needed imputation were given a value by the "hot deck" donor imputation procedure. Imputation of these data is done with stratum that have similar characteristics. Characteristics used to form groups of donor are the size of the location, the industry classification and the region of the location.</p>

	<p>The same hot deck donor imputation procedure is used in the survey of employees but the variable "occupation" was added to form the groups of donors.</p>
<p>Weighting of results Weighting method e.g. by employment, number of enterprises, revenue</p>	<p>In stage 1, the final weight is the product of the sampling weight and a non-response adjustment.</p> <p>In stage 2, the stage 1 weight has to be adjusted to reflect the fact that a maximum of two occupations were selected from the occupations present. It is also necessary to add a "number of employees" adjustment factor to ensure that the number of employees calculated in stage 2 for each new stratum/occupation is the same as the number computed in stage 1.</p> <p>The required adjustments for stage 3 are as follows: a series of four adjustments were applied to compensate for occupations for which no employee responded; a second adjustment was applied for employee non-response; and a final adjustment ensured that the number of employees computed in stage 3 for each new stratum/occupation is the same as the number computed in stage 1.</p> <p>For more information on the weighting procedures, see Chapter 4 of Methodology of the National Survey of Information Technology Occupations 2002</p>
<p>Relative standard errors (or coefficients of variation) on main aggregates These can be expressed as a range of values. For a given variable, the RSE or CV is equal to the ratio of the square root of the estimate of the sampling variance to the estimated value. It can be expressed as a fraction or a percentage.</p>	<p>The data quality indicator for statistics at the aggregate level range from A ("Very Good") to F ("Very Poor") but in the majority of cases they are of "Very Good" and "Good" quality, which mean a CV of below 5%, and, 5% to 15% respectively.</p> <p>For details about the standards used to measure data quality for this survey, see Survey of Information Technology Occupations - Data Accuracy</p>
<p>Known data quality issues with this collection E.g. non-response bias, comparability problems over time, definitional issues, coverage deficiencies, timeliness of frame, high item non-response (identify topics which are particularly problematic).</p>	<p>Because of the low response rate in stage 3, there may be a bias in some estimates. The bias could be caused by the fact that an employee with quite different characteristics from the other respondent employees in the same domain had a higher weight than the other employees.</p> <p>For each domain published, an indicator of possible bias was produced. If, for a given domain, the sum of the weights of the observations with the highest weights (we take the top 50% of the observations arranged in descending order of weight) makes up more than 85% of the domain's total weight, an indicator shows the possibility of a bias.</p>
<p>Output details Please list (or link to) relevant publications for this collection. You can also email relevant files to the OECD.</p>	<p><i>The Daily:</i> Survey of Information Technology Occupations A Profile of Workers in Information Technology</p> <p><i>Perspectives on Labour and Income:</i> Information Technology Workers</p> <p><i>Canada's Journey to an Information Society,</i> Chapter 8.2: Information Technology Occupations</p> <p>Pilot survey results: employer survey, employee survey</p>
<p>Other comments</p>	

Contact/s

Where available, provide names and email addresses.

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