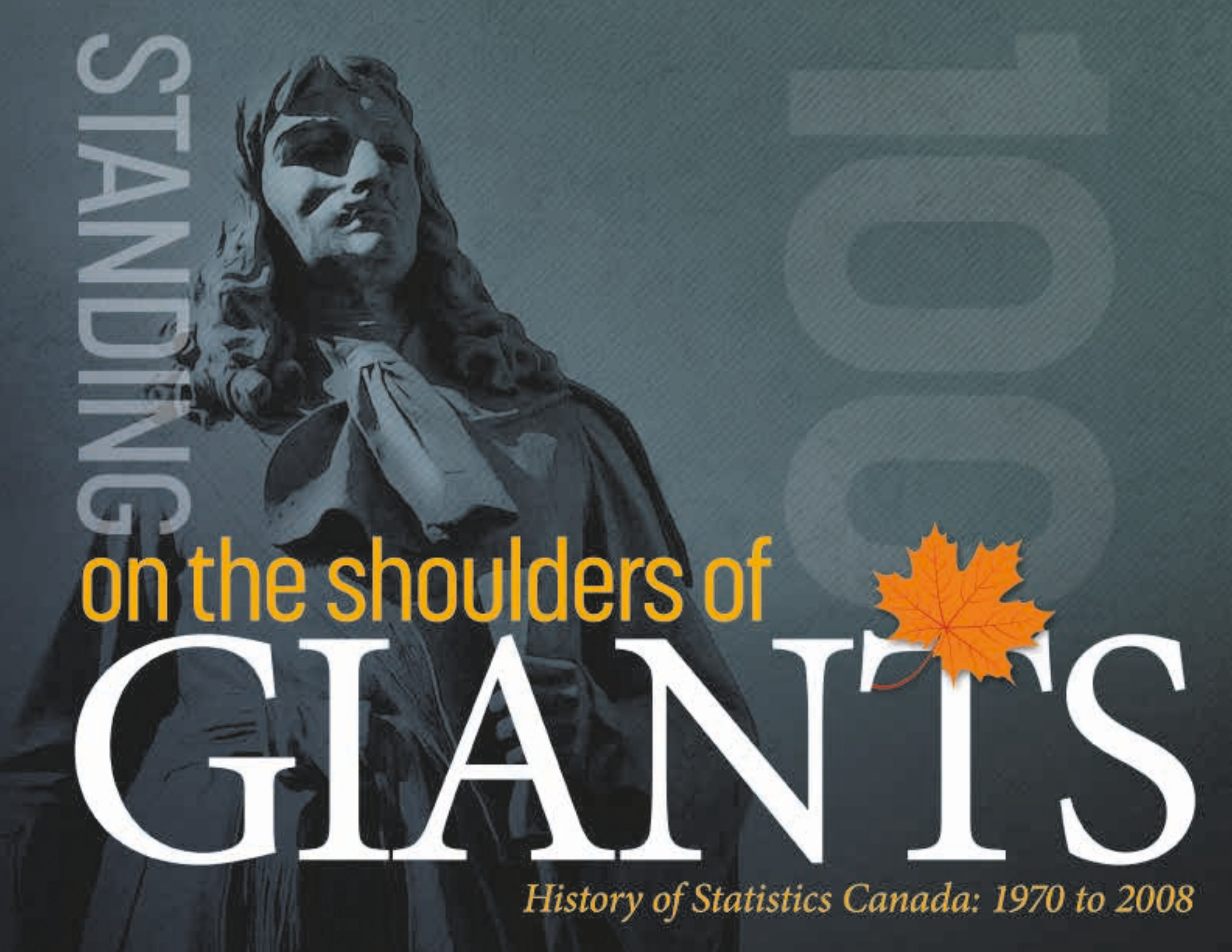

STANDING
on the shoulders of
GIANTS
History of Statistics Canada: 1970 to 2008



Robert H. Coats,
Dominion Statistician, 1915-1942



Sedley A. Cudmore,
Dominion Statistician, 1942-1945



Herbert Marshall,
Dominion Statistician, 1945-1956



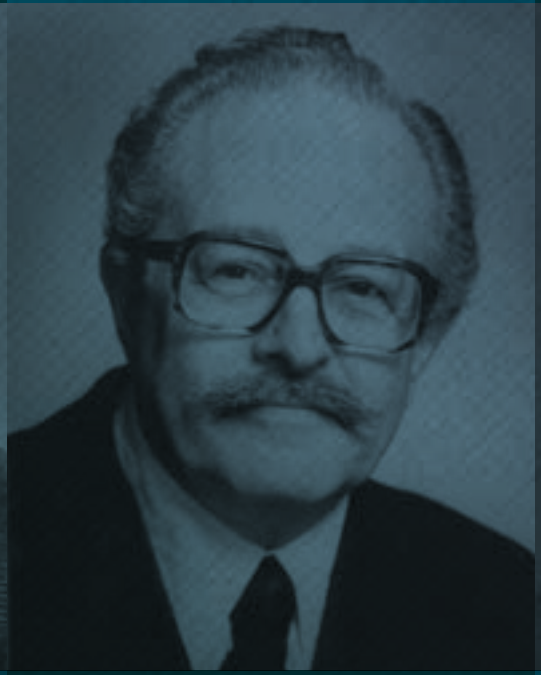
Walter E. Duffett,
Dominion Statistician, 1957-1972



Sylvia Ostry,
Chief Statistician of Canada, 1972-1975



Peter G. Kirkham,
Chief Statistician of Canada, 1975-1980



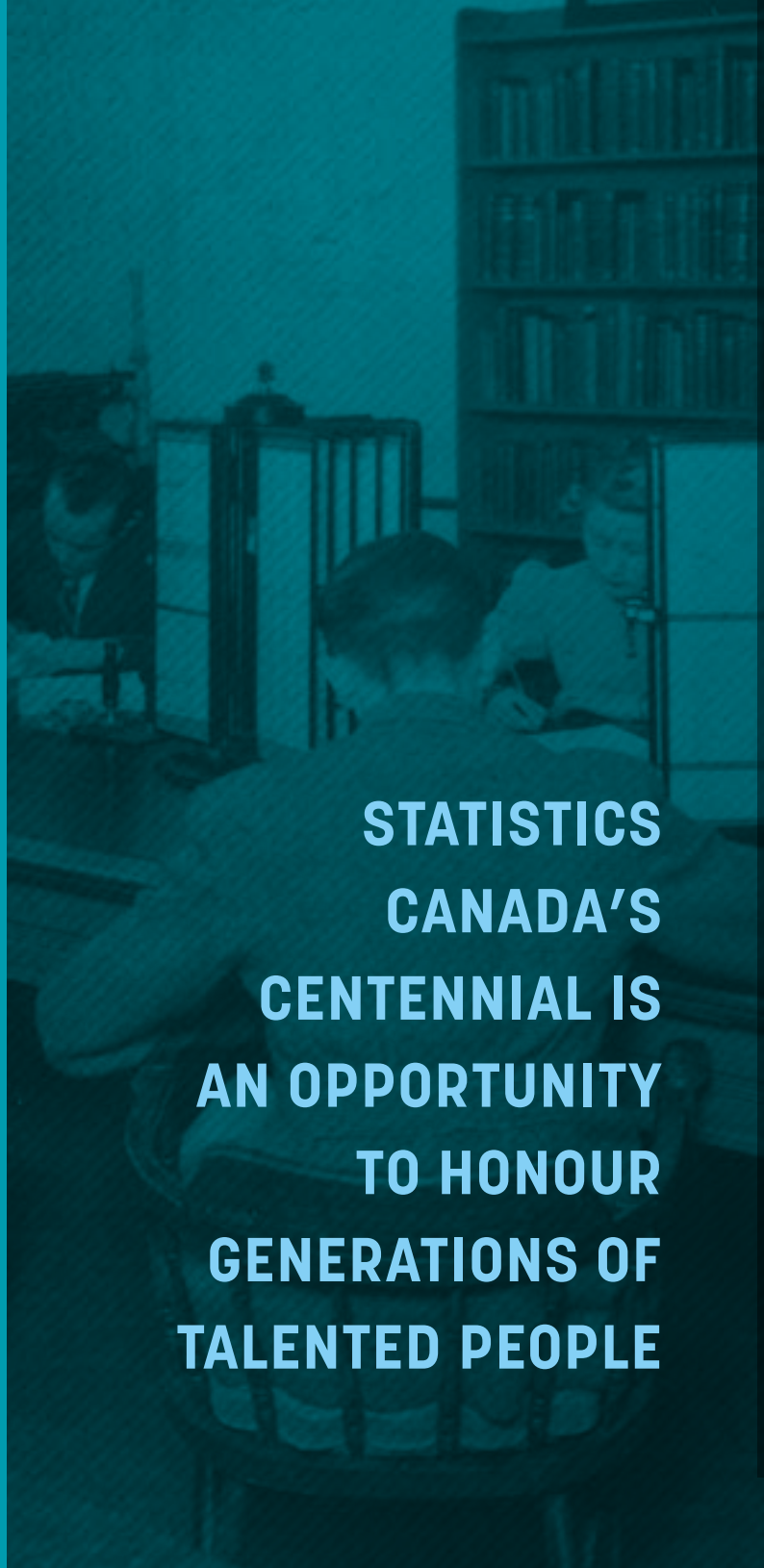
Martin B. Wilk,
Chief Statistician of Canada, 1980-1985



Ivan P. Fellegi,
Chief Statistician of Canada, 1985-2008

STANDING on the shoulders of GIANTS

History of Statistics Canada: 1970 to 2008



STATISTICS CANADA'S CENTENNIAL IS AN OPPORTUNITY TO HONOUR GENERATIONS OF TALENTED PEOPLE

INTRODUCTION

A century has gone by since the Dominion Bureau of Statistics — later renamed Statistics Canada — was created.

Much has changed since 1918, including the rapid evolution of technology and the emergence of an increasingly global society and economy. Statistics Canada has changed as well, enhancing our processing and analytical capabilities, and expanding our programs. Today, the agency's reach extends from coast to coast to coast and far beyond, as we work with colleagues around the world.

We continue to innovate. Now more than ever, we are focused on the needs of our users. We are adopting leading edge statistical methods, and collaborating with clients, stakeholders and partners. We are striving to meet Canadians' evolving information needs, and using new tools and channels to make our data more accessible and engaging.

Statistics Canada's centennial is an opportunity to honour the generations of talented people who have brought the agency to where it is today. It is also a chance to celebrate what has remained consistent over time: the quality of our data, the dedication of our employees and most importantly, the value that we add to Canadians' understanding of our society, environment and the economy.

As we mark this milestone, Statistics Canada remains committed to providing Canadians with high-quality statistical information that matters. Together, we are laying the groundwork for another remarkable century.

Anil Arora
Chief Statistician of Canada

FORWARD

It has been a true privilege to have been bestowed the honour of writing the next chapter of Statistics Canada's history. Sitting day after day in a somewhat chilly room at Library and Archives Canada, I methodically delved into the richness of our past — holding in my hands documents ranging from letters from Prime Ministers to mere transactional memos. I felt truly humbled—here I was, assembling a portrait of the great women and men who bit by bit, made Statistics Canada the world renowned institution it is today. Believe me when I say, that we truly stand on the shoulders of giants.

It was definitely a challenge to assemble that "bit-by-bit" perspective into a narrative. I see this as analogous to how it can often be difficult to appreciate the value of our day-to-day work. It is only when we pause and stand back from the gallery walls, and look with greater perspective at our collective history, that we truly perceive the bigger picture to which we all contribute. To that end, when enough time has passed to allow for sufficient objectivity, it will again be time to document the next chapter of the agency's history. So take time to reflect and to celebrate, and to document your successes and your failures - for both of these help shape who we are and who we will become.

The people I met during this project helped shaped its outcome. From the kind and helpful folks in the Statistics Canada library and at Library and Archives Canada, to the external review board who generously donated their time to read my disjointed narratives and to patiently steer me in the right direction, to Dr. Wilk's French teacher who I met while on holiday and who was moved to tears by his memories, to all the friendly folks in Communications and Dissemination Branch who always had a smile for this fish-out-of-water and who took this project to the finish line, thank you.

I hope that I have done justice to the formidable task of illuminating our path from the early 1970s through to the end of Dr. Fellegi's tenure.

Margaret Morris
Statistics Canada



SITTING DAY AFTER DAY IN A SOMEWHAT CHILLY ROOM AT LIBRARY AND ARCHIVES CANADA, I METHODICALLY DELVED INTO THE RICHNESS OF OUR PAST

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CHAPTER 1

Setting the stage and introducing the early 1970s



THE EVOLUTION OF CANADA'S NATIONAL STATISTICAL AGENCY

Historical works are excellent opportunities to peer into the past, not only to satisfy our curiosity about "the way things were," but also to see how far we have come and to learn from the past. For Statistics Canada, such works are also opportunities to commemorate the agency's contributions to Canada and its people. They also serve as a reminder that an institution such as Statistics Canada did not instantly materialize—it was shaped over many years by many influences, and it continues to evolve each and every day.

Two relatively recent significant works have been authored on the history of Statistics Canada, the first of which was published in 1993: *75 Years and counting: A history of Statistics Canada*. This publication covered the early beginnings and the first 75 years of the agency. Six years later, a more academically-oriented work was published: *The Dominion Bureau of Statistics: A History of Canada's Central Statistical Office and Its Antecedents 1841-1972*. The latter, written by retired Assistant Chief Statistician David Worton, intertwined the agency's story within the larger economic, political and social context of the times. True to common practice among historians, the story ends in the far enough past to allow for sufficient objectivity. Two decades later, in 2018, Statistics Canada celebrates its 100th birthday and, in honour of the occasion, has published this new work. Although not as academically oriented, it takes flight from where Mr. Worton left off and, after a brief synopsis of the early years, tells the story of the next 36 years, until 2008.

THE ADVENT OF STATISTICS IN CANADA

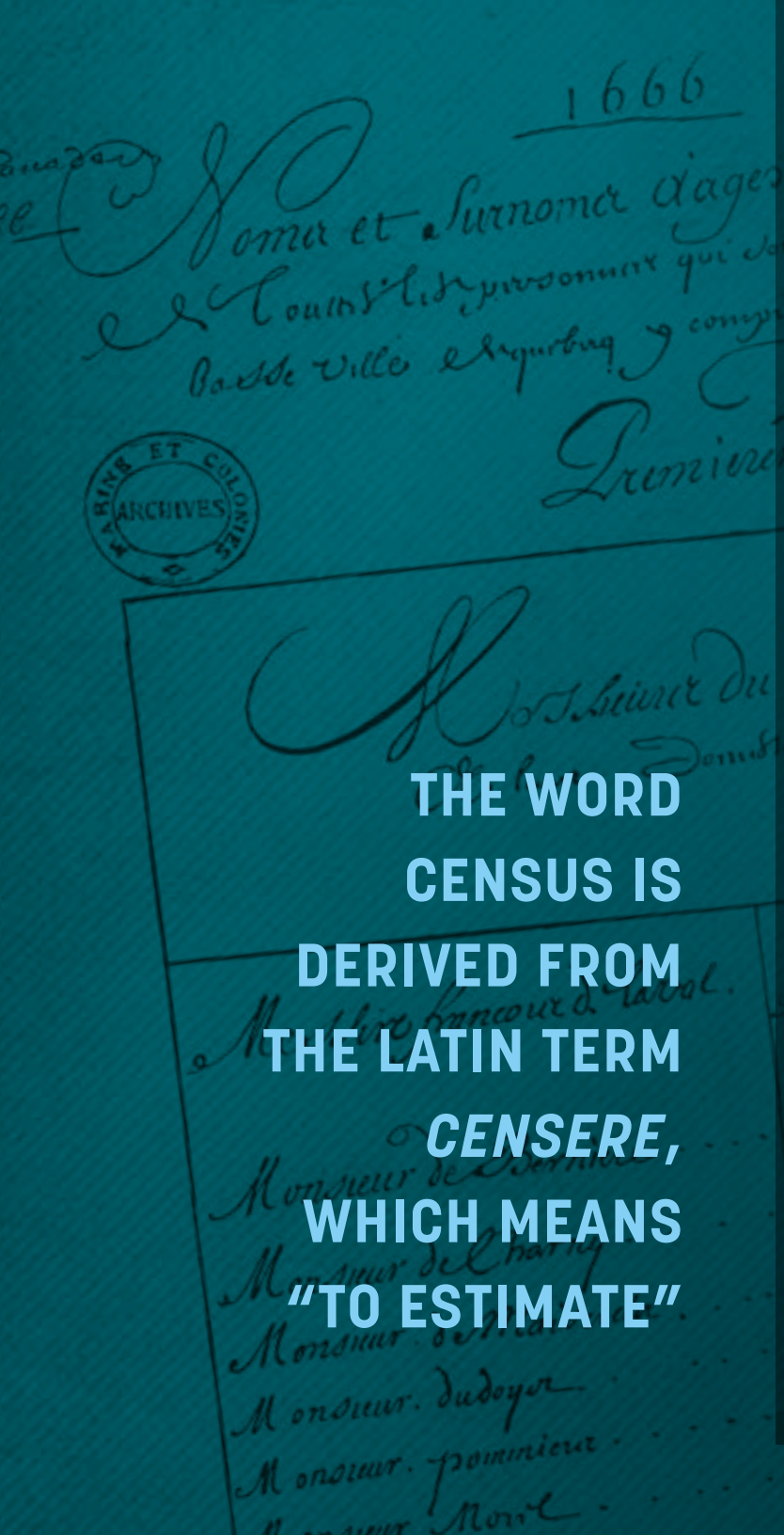
Canada celebrated the 150th anniversary of its confederation in 2017. Prior to Confederation, statistical activity hinged around measuring the population to gauge the progress of European colonization. The collection of statistics on what is now known as Canada goes back to the early 1600s, when Roman Catholic missionaries collected data on births, deaths, and marriages of early European settlers. In fact, one can go back as far as the year 1605 by delving into records of European settlement at Port Royal, or by pouring through the writings of French explorer Samuel de Champlain and missionary Gabriel Sagard. In the data gleaned from these historical records, deaths exceeded births until about 1638. Thereafter, the population grew—in fact, a history of Statistics Canada written in 1952 quite matter-of-factly pronounces that "indeed, the French Canadian population has always been remarkable for its high rate of natural increase."

Of course, the original occupants of the land we now call Canada were the Indigenous peoples. A book published in 1876 on the Censuses of Canada from 1665 to 1871 contains statistical tables on social and economic conditions in Canada over those 206 years, including population estimates of Indigenous people. The earliest counts are sourced from letters from Jesuit missionaries written in 1611, and include estimates of population and land by band. The first systematic enumeration of Indigenous people took place in the Census of 1871, which counted 102,358 Indigenous persons.

The first known systematic enumeration of the colony population in Canada was first conducted in the winter of 1666–1667 by the first Intendant of New France, Jean Talon, who ironically, was later to be granted the title of count—Count d'Orsainville. He counted 3,215 European settlers in the three settled districts of Quebec, Trois-Rivières, and Ville-Marie (or Montréal). Jean Talon took this count on the request of the Sun King, Louis XIV, who desired to know how many people the colony contained after the more than 50 years of its existence. He recorded all persons in the colony by name, age, occupation, conjugal status, and relationship to the head of the family. He also measured the wealth of industry and agriculture, the value of local timber and mineral resources, and the number of domestic animals, seigneuries, government buildings, and churches. When the data he collected indicated a need for a larger population, he requested that more people be sent from France. This resulted in the immigration of about 1,000 women ("filles du roi"), who were to become the wives of the men already in the colony. To help the new families, Jean Talon presented them with plants and animals to encourage agriculture. He also established industries such as shipbuilding and built the first brewery. Some say he sowed the seeds of permanence, and helped establish the country's roots.



Jean Talon, Canada's first official statistician



THE WORD CENSUS IS DERIVED FROM THE LATIN TERM *CENSERE*, WHICH MEANS "TO ESTIMATE"

STATISTICS IS AN ANCIENT CALLING

Jean Talon's census of 1666 places Canada among the first countries to take a census in "modern times." The word "census" has its roots in Roman times: it is derived from the Latin term "censere," which means "to estimate." Used by ancient civilizations for military or taxation purposes, censuses were also conducted in the eighteenth century in Sweden, Denmark, Austria and a number of Italian states.

The first census conducted in the United States dates back to 1790, and was notable for its primary purpose, which was to provide a basis for the apportionment of Members of the House of Representatives among the several States. Representation by population in the Federal House of Commons would not be introduced into Canadian legislation until Confederation, in 1867.

In the United Kingdom, the first census took place in 1801. Canada's 1921 Census Report makes reference to how, in the British House of Commons in 1753, a member stated that his constituents "looked on the proposal as ominous, and feared lest some public misfortune or an epidemical distemper should follow the numbering."

Fear of the census was not unknown to Canada, either. One of the reasons the Census of 1851 of Upper and Lower Canada was not a great success was that people regarded census-taking with suspicion. Joseph Charles Taché, the Secretary of the Board of Registration and Statistics at the time, indicated in his report that "...a very general feeling was found to prevail throughout the Colony, that the Census had some direct or indirect reference to taxation – and in this belief the Enumerators were received most ungraciously, and the information sought was, not only partially, but, in some cases, altogether withheld." Instructions to enumerators for subsequent censuses clearly stated that a census was not taken for the purposes of taxation.

Over the ensuing 200 years, data continued to be collected, albeit irregularly, on the population, as well as on other subjects, including agriculture, trade, mining, and manufacturing. It was under the *British North America Act* of 1867 (which in 1982 was renamed the *Constitution Act, 1867*), when the Dominion of Canada was created by the union of the provinces of Ontario, Quebec, Nova Scotia and New Brunswick, that statistics were formally assigned to the jurisdiction of the federal government. That same Act called for decennial censuses of the population. It was also under this act that representation of the provinces in the House of Commons was first adjusted to reflect changes in the population. The province of Quebec was given a fixed number of seats (65), which was the number held by Lower Canada in the Canadian Legislature prior to Confederation. The other provinces were each assigned a number of seats based on their population as determined by the Census. The Dominion's *Census Act*, passed in 1870, laid the foundation for the 1871 Census—the first nation-wide census conducted after Confederation. One-hundred years later, in 1971, commemorative postage stamps would celebrate this significant census milestone. The groundwork for a general system of Canadian statistics had been laid by Joseph Charles Taché, appointed in 1864 by D'Arcy McGee as the Province of Canada's first permanent Deputy Minister of Agriculture with special responsibility for statistics. Taché therefore became the Commissioner of the first census of the new nation of Canada.

The first *Year Book*

After Confederation, other official statistics developed. For example, the first compilation of Canadian statistics was performed in 1867 with "The Year Book and Almanac of British North America for 1867 – being an annual register of political, vital, and trade statistics, tariffs, excise and stamp duties; and all public events of interest in Upper and Lower Canada; New Brunswick; Nova Scotia; Newfoundland; Prince Edward Island; and the West India Islands."

From 1867 to 1879, the book was published by the Department of Finance, and for many years was the only vehicle to pull together the vast body of statistical information on the country and its inhabitants. The early books were produced commercially, and came complete with advertisements for steamship tickets, sewing machines, pianos, and life insurance. The book was officially made a Crown publication in 1879 under the Department of Agriculture, and advertisements were no longer accepted. The *Year Book and Almanac* was the progenitor of the *Statistical Abstract and Record of Canada*, which began in 1886, published by the Department of Agriculture, which had been given the power to regulate the collection and publication of general statistics under the *Census and Statistics Act* of 1879. The first French edition was published in 1887. The publication was later to be renamed the familiar *Canada Year Book*, in 1905, which became a staple in many Canadian homes, especially before the age of digital information. With a few respites, this compilation of statistics was produced for 145 years, including an electronic version starting in 2003. It ceased publication in all forms in 2012. A total of 111 editions were produced over those 145 years, the imparity a result of cost, organizational changes, or even the availability of Parliament in the early years. For many years, the *Canada Year Book* was the only vehicle pulling together the body of knowledge collected through the national statistical system, an official record chronicling over a century of Canada's economic, social, and legislative progress. However, it ultimately came to an end in recognition of the growing need of data users for up-to-date and online information, which the agency would make freely available starting in 2012.

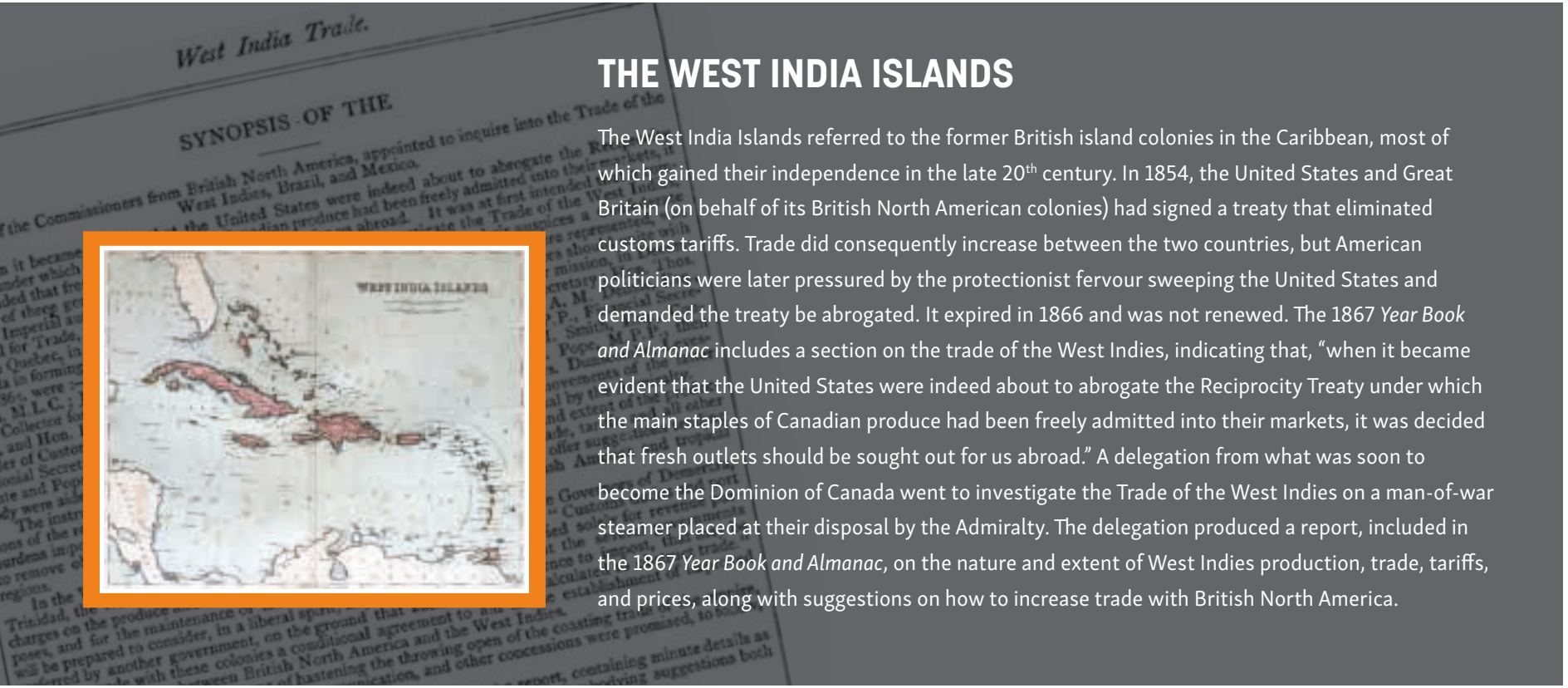
Statistics were also beginning to be assembled as "by-products of administration," including insurance statistics from the Insurance Branch

of the Department of Finance in 1875, data which were subsequently pushed back to 1869. Other early statistics of an administrative nature included criminal, mortuary, railway, postal, merchant shipping, trade, and immigration statistics.

Creation of the Dominion Bureau of Statistics

The creation of a permanent Census and Statistics Office took place in 1905 under the Ministry of Agriculture and was another milestone in Canada's statistical history as it meant that the experience gained in the taking of a census was preserved for use in the next. Most other statistics were being produced in a decentralized fashion by many departments of the Canadian government, with next to no standards or comparability. The driving force behind the establishment of the permanent office was Archibald Blue, who was appointed special census commissioner in 1900 and who conducted the censuses of 1901 and 1911.

At this time, Sir Robert L. Borden was Prime Minister, and the Right Honourable Sir George Eulas Foster, the Minister of Trade and Commerce, was the Minister responsible for Statistics Canada. In 1912, Foster incorporated the Census and Statistics Office into his



THE WEST INDIA ISLANDS

The West India Islands referred to the former British island colonies in the Caribbean, most of which gained their independence in the late 20th century. In 1854, the United States and Great Britain (on behalf of its British North American colonies) had signed a treaty that eliminated customs tariffs. Trade did consequently increase between the two countries, but American politicians were later pressured by the protectionist fervour sweeping the United States and demanded the treaty be abrogated. It expired in 1866 and was not renewed. The 1867 *Year Book and Almanac* includes a section on the trade of the West Indies, indicating that, "when it became evident that the United States were indeed about to abrogate the Reciprocity Treaty under which the main staples of Canadian produce had been freely admitted into their markets, it was decided that fresh outlets should be sought out for us abroad." A delegation from what was soon to become the Dominion of Canada went to investigate the Trade of the West Indies on a man-of-war steamer placed at their disposal by the Admiralty. The delegation produced a report, included in the 1867 *Year Book and Almanac*, on the nature and extent of West Indies production, trade, tariffs, and prices, along with suggestions on how to increase trade with British North America.

department, and shortly thereafter formed a Departmental Commission on Official Statistics to determine the best way of creating "a comprehensive system of general statistics adequate to the necessities of the country and in keeping with the demands of the time." The Commission would confirm the fragmentary and disparate nature of official statistics in the country and recommended a central statistical office.

Among the members on the Commission was Robert Hamilton Coats, a Toronto journalist, who started his Ottawa career in 1902 with the new Department of Labour under Deputy Minister William Lyon Mackenzie King. At the turn of the century, the Dominion Department of Labour had been created to collect information on labour conditions and wages, which it published in the *Labour Gazette*. R.H. Coats would become editor of the *Labour Gazette* with significant expertise in the area of wages and cost of living statistics. He had made his name largely through his work on a report in wholesale prices from 1890 to 1909, which was instrumental in demonstrating his masterly grasp of the technical issues involved in statistics. After his work on the Commission, he returned to the Department of Labour and was soon appointed to another board of enquiry, into the cost of living. He achieved notoriety by refusing to sign the report produced, on the grounds that he did not agree with its anecdotal nature, and produced his own report on the side. Quite collegially, both reports would be published.

In June 1915, R.H. Coats was appointed as the Dominion Statistician and Controller of the Census at the Department of Trade and Commerce to carry out the recommendations of the Commission and lay the groundwork for a centralized statistical system. He drafted *An Act respecting the Dominion Bureau of Statistics*, which Foster introduced as Bill 32 in the House of Commons on April 4, 1918. The bill was passed shortly thereafter, and received royal assent on May 24, 1918, creating the Dominion Bureau of Statistics and a centralized and coordinated national

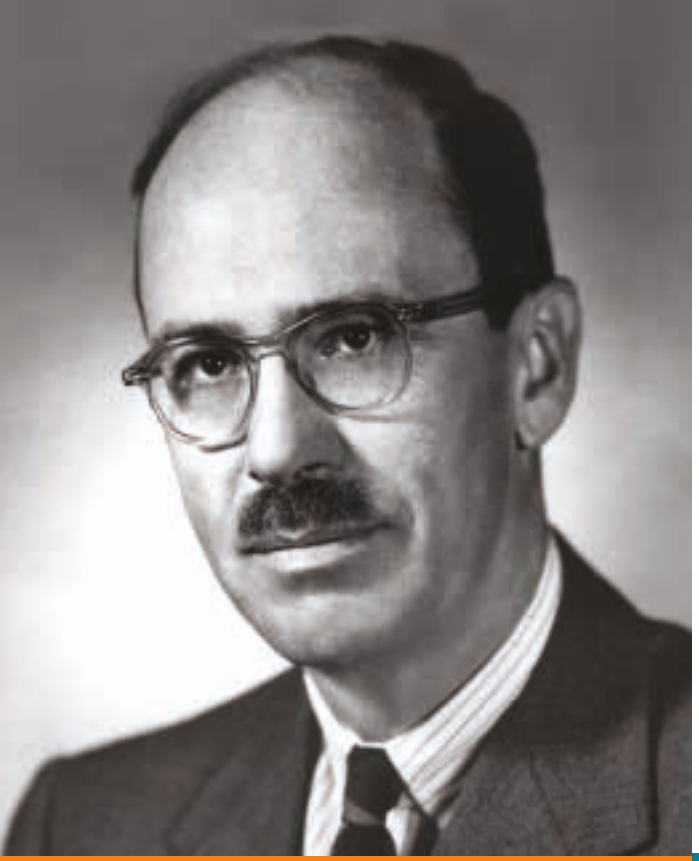


Robert H. Coats, Dominion Statistician, 1915-1942

IN THE TWITTER OF THE MOMENT

One cannot help but be humbled by the eloquent language of our predecessors. The following excerpt is from a 1936 address by R.H. Coats, speaking of his appointment as the seventh president of the Canadian Political Science Association, and as the first statistician in that role:

"Even in Canada, a statistical association was born, gasped and died before our own got on its feet. Thus, in all delicacy, speaking for my statistical *confrères*, we feel that after six political economists for president all in a row, it is fitting we were called up higher. In the twitter of the moment, we might even wonder if we are Cinderella, who from her ashes was once invited into the parlour. She came, you remember, in all meekness, with nothing of the kitchen fire in her eyes, yet I feel sure in some consciousness of merit, for it was Cinderella who finally married the prince."



Walter E. Duffett, Dominion Statistician, 1957-1972

statistical system, with R.H. Coats as its very first Dominion Statistician. He would hold the position for a total of 27 years, actively encouraging innovation and development in the collection and compilation of data.

Structurally, the *Statistics Act* of 1918 was a consolidation of previous statistical legislation: the *Census Act*, the *General Statistics Act*, the *Railway Statistics Act*, the *Criminal Statistics Act*, and the statistical sections of other legislation. Specific sections dealt with the decennial and quinquennial censuses of population and agriculture, an annual census of industry (including Mines, Fisheries, Forestry, Manufactures and Construction), statistics of trade and commerce, transportation statistics, and criminal and general statistics. It also included sections on collaboration with other government departments and with the provinces. Most importantly, the *Statistics Act* established a central statistical system with broad authority to collect administrative and survey data for statistical purposes.

The unified and centralized system that resulted has been the underpinning of the Canadian national statistical system ever since, and it is therefore based on the creation of the Dominion Bureau of Statistics in 1918 that Statistics Canada celebrates its 100th birthday in 2018.

AN INTERNATIONALLY WELL-RESPECTED ECONOMIST

WALTER E. DUFFETT

Walter Duffett was an internationally well-respected economist. He was born in Toronto in 1910, although he attended public and high school in Galt, Ontario. He pursued a bachelor of commerce degree at the University of Toronto and a master of science degree in economics at the London School of Economics. After working as a security analyst in the Investment Department of Sun Life in Montréal and in London, Walter Duffett joined the Wartime Prices and Trade Board in 1942. He transferred to the Research Department of the Bank of Canada in 1944, and 10 years later was appointed Director of the Economics and Research Branch at the Department of Labour. He was appointed Dominion Statistician in 1957, and held that title until his retirement, in May 1972. He was technically Canada's first "Chief Statistician" when the Dominion Bureau of Statistics was renamed Statistics Canada, although he preferred to call himself "Government Statistician." After his retirement, he became Vice-President of the Conference Board of Canada. He was elected President of the Inter-American Statistical Institute in 1980.

STATISTICS CANADA GETS ITS NAME

Walter Elliott Duffett was Dominion Statistician when, fifty-three years later, a new *Statistics Act* was passed and proclaimed on May 1, 1971. Like R.H. Coats, Walter Duffett had come to Statistics Canada from the Department of Labour. He became Canada's first Chief Statistician when the Dominion Bureau of Statistics was reborn as Statistics Canada, and served in that role from 1957 to 1972.

The "racy" new Statistics Canada

Although the Dominion Bureau of Statistics officially became Statistics Canada earlier in the year, implementation of the new name was delayed until August, when the census would be out of the field, to avoid confusion in the public's mind as the 1971 Census documents bore the previous name. The first publication to bear the new name was the *Statistics Canada Daily*, launched on August 3, 1971. At the time, a number of alternatives to the new name were proposed. In fact, the public wrote in to the Minister responsible for Statistics Canada with suggestions. The alternatives proposed included the "Canadian Bureau of Statistics" and the "Statistics Office of Canada." Some people thought that the new name "Statistics Canada" was "a racy title" and a bit "flashy" and apparently there was internal concern over the inelegant potential contraction of "Statistics Canada" to "StatCan." Arrangements were made to change the name on the population clock in the lobby of the Main Building of the Dominion Bureau of Statistics. This clock had been unveiled by Prime Minister Pierre Trudeau in 1968, to commemorate the 50th anniversary of Statistics Canada. The clock, at that time, recorded a population of 21 million people in Canada.

The revised *Statistics Act* aimed to achieve more meaningful federal–provincial cooperation in statistical matters and included provisions for avoiding duplication in the collection of data through joint data collection and data sharing with the provinces. On the data user side, the *Statistics Act* included modifications to confidentiality provisions to allow researchers access to non-identifiable microdata. It also provided for increased access to administrative data, including income tax returns and other data held by federal government departments, to avoid duplication in the reporting of information. In response to growing concern over burden on business respondents, Duffett reported to a House of Commons Finance Committee on some of the positive outcomes of the new act, including that "the respondent is our best friend and we do not want to kill the goose that lays the golden eggs."



STATISTICS CANADA'S POPULATION CLOCK

Statistics Canada's population clock was seven feet tall and four-sided and had been constructed as part of the Census program and to highlight the novelty of computer technology at the time. It had a digital counter across the top, and additional counters across the four faces, which counted births, deaths, and immigration. Statistics Canada's demographers had calculated the frequency of these occurrences and the clock was programmed accordingly. It was extremely popular at the Bureau, and with the public, who would pass through the lobby of the Main Building just to see it. The fate of the clock is somewhat uncertain, but it was likely dismantled after only a few years of operation.



A DEPARTMENT IN ITS OWN RIGHT

Walter Duffett was Dominion Statistician when the Bureau was recognized as a department in its own right, no longer accountable to the deputy head of another department. The 1960 Royal Commission on Government Organization (the Glassco Commission) was appointed to recommend changes in the interest of increased efficiency, economy, and an overall improved public service.

One of the most important symbolic outcomes of the Glassco Commission was that it formalized the independence by convention that had been achieved step by step since the time of R.H. Coats, to whom objectivity was of great importance. The formalization of independence to ensure ongoing objectivity and impartiality is an ongoing preoccupation of national statistical offices. In January 1965, by Order in Council, the Bureau was designated as a department of the federal government, with the Dominion Statistician as Deputy Head.

A key outcome from their report was the importance of the objectivity of statistical operations. This included the recommendation that the Dominion Statistician should not hold office "during pleasure" but instead "during good behaviour and removable only for cause." This recommendation resurfaced over half a century later in Bill C-36, *An Act to amend the* Statistics Act, which proposed the reinforcement of Statistics Canada's independence through various legislative amendments. Similarly, the Glassco Commission recommended the formation of an advisory council, comprising representatives of the principal users of statistics and other public bodies, to meet periodically with the Dominion Statistician on statistical matters, and to report annually to the responsible minister. At the time, the Bureau was reluctant to create an additional advisory committee, with an existing network of 45 to 50 subject matter and other committees, including those of a federal–provincial nature. It was not until two decades later that the National Statistics Council was formed, and it was not until 2017, with the introduction of Bill C-36, that the possibility of an advisory group undertaking an annual report on the state of the statistical system was brought forward. In fact, the recommendation for an advisory statistical commission was first brought forward unsuccessfully by R.H. Coats in 1918 and again a number of times in later years.

The Honourable Monique Vézina with Dr. Ivan P. Fellegi at the inaugural meeting of the National Statistics Council on October 9, 1986

A MAJOR EXPANSION IN A TIME OF GREAT CHANGE

At the end of 1918/1919, there were a total of 123 staff at the Bureau, initially recruited from the Department of Trade and Commerce and the Department of Agriculture. In the early seventies, Statistics Canada's permanent and casual workforce numbered between 3,500 and 4,000. The agency hired 300 to 400 summer students each year, and had a difficult time finding and retaining enough staff to meet its growing needs, especially at professional and senior levels. For example, in the 1969/1970 fiscal year, there were about 1,700 new hires (of which 1,100 were full-time). This high number of new hires was likely partially attributable to the fact that the previous year had seen a government-wide recruitment freeze and the fact that the agency had recently re-organized. The re-organization that had just taken place, in January 1967, was an important step for a rapidly growing organization. The previous arrangement had a large number of divisions reporting directly to the Dominion Statistician. Such a structure was not sustainable as the size and complexity of the organization grew. Over a number of years, the Bureau had been considering grouping the divisions into branches, but the availability of professional

THE SEPARATIST MOVEMENT AND THE OCTOBER CRISIS

The *Front de libération du Québec* (FLQ) was a separatist and Marxist-Leninist paramilitary group formed in the early 1960s, known as the violent wing of the Quebec sovereigntist movement. It was responsible for a number of attacks throughout the 1960s, including bank hold-ups, kidnappings, and bombings. The most notable bombing carried out by the group was that of the Montréal Stock Exchange in 1969. In 1970, after about a decade of growing support for the FLQ, the October Crisis occurred in Quebec. Members of the FLQ kidnapped the provincial Minister of Labour, Pierre Laporte, and British diplomat James Cross. In response, Prime Minister Pierre Trudeau invoked the *War Measures Act*, in its only peacetime use, a controversial move that suspended civil liberties by granting the police wide-ranging powers of arrest and internment. Troops were also sent to patrol vulnerable areas and guard prominent individuals thought to be at risk. The FLQ called for a socialist insurrection against Anglo imperialism, the overthrow of the Quebec government, and the independence of Quebec from Canada. Public support grew among left-leaning Canadians, until mid-October, when Pierre Laporte was murdered. In early December, after he had spent about two months in captivity, Cross's release was negotiated. The list of demands included, among other things, the release of 23 political prisoners, currency in gold, the publication of the FLQ manifesto, a flight to Cuba or Algeria, and the cessation of all police search activities. The five known kidnappers were granted safe passage to Cuba by the Government of Canada after approval by Fidel Castro. Those responsible for Laporte's murder were arrested and charged. By January 1971, the troops were withdrawn from Quebec. The events accelerated the use of electoral means to greater autonomy, as opposed to violence, and garnered support for the sovereigntist political party, Parti Québécois, which would form the provincial government in 1976 and set the stage for a referendum on Quebec sovereignty four years later.



Employees punching cards for the 1931 Census.

TO KEEP UP WITH THE STATISTICAL NEEDS OF THE COUNTRY, THE AGENCY EXPERIENCED THE GREATEST GROWTH IN SIZE, COMPLEXITY AND BUDGET IN ITS HISTORY

staff was a big obstacle. By 1966/1967, it was felt that recruitment as well as the development of existing officers could meet the needs of the new re-organization, and the change was implemented. As well, as it does for each census, the agency staffed up for that of 1971, with about 50,000 temporary employees ready and in place for Census Day, which at that time was June 1.

Naturally, changes at the agency stemmed largely from what was happening in Canadian society at the time, and the 1970s was certainly a time of great change for Canada and for the world. Pierre Elliott Trudeau was Prime Minister; the country officially became a bilingual nation; the separatist movement was active in Quebec; the Vietnam War was under way; and world oil prices would soon quadruple in the 1973 oil crisis. Overall consumer prices would rise by almost 8% in 1973 compared to a year earlier, from price increases in gasoline, electricity, and food. These price increases were the first step to almost a decade of stagflation, where consumer price inflation was high and economic growth was slow.

The population of Canada was flourishing as a result of the post-war baby boom and increased immigration, and the labour force was expanding significantly, largely as a result of increased female participation. To keep up with the statistical needs of the country, the agency experienced the greatest growth in size, complexity and budget in its history of operation, with the budget growing by a factor of 7 and the number of staff more than doubling over the time Duffett was in office, from 1,449 in 1957 to 3,545 in 1972. Pressures for growth were not only the need for more precise and detailed information, but also the growing importance of educational, cultural and other social spheres of knowledge.

The age of automation

This was also the age of automation as the agency began harnessing computing power for its operations. While mechanical tabulation equipment was experimented with as early as 1891, computer tabulations were first carried out at the Bureau for the 1961 Census, using magnetic tape and an IBM 705 Mark III. For the 1971 Census, processing began with microfilming each questionnaire, and subsequently transferring the data to magnetic



Computing colossus, the IBM 705 Mark III, 1969

THE AGENCY'S RESIDENT INVENTORS

The 1911 Census was the first to be processed almost entirely by mechanical tabulation—a temporary staff of 160 clerks worked with 70 card-punching machines and 20 tabulators. The first tabulator was invented by Herman Hollerith in the United States and first used for the 1890 U.S. Census. Hollerith's company would later become International Business Machines (IBM) Corporation. In Canada, the Dominion Bureau of Statistics experimented with electrical tabulation for the first time the following year, for the 1891 Census, for the processing of its population data. To help put this in historical context, electric power generation was relatively new—in fact, street lighting was first installed in the larger Canadian cities in the early 1880s. Electrical tabulation machines allowed population statistics to be compiled more quickly and at a lower cost, using perforated cards. Each enumerated person (of which there were about 4.8 million) had a card. The cards were first punched with a pantographic punch, each hole corresponding to one data point. "These cards are then passed through the electrical tabulator, which, by ingenious contrivances, records the answers on a number of dials." In fact, metal pins would pass through the holes on the punched cards to make contact with metal plates to complete an electrical circuit and register a count. It must have been a noisy room, as one of the census bulletins remarks that "Each time the circuit closing device is brought down upon the card, the hand of one of the dials moves and a bell rings to tell the operator that the religion has been registered." The data release bulletin remarks that "one of the advantages of this system is the accuracy with which the statistics are compiled. The instrument is not lazy. It is not made heedless by the state of the atmosphere in the room. It is not dishonest. It will not register a Presbyterian as a Roman Catholic, nor an Armenian as a Calvinist, from any of these causes. It is absolutely impartial." It took 40 days to do the first run of the cards through the machine to compile the religion data.

In the United States, the rental costs of the machines from Hollerith grew too high, and the Census Machine Shop set out to develop tabulation machinery of its own in the early 1900s. A newspaper account credits Charles W. Spicer with the invention of the tabulator used for the 1910 U.S. Census. After it was shown to be successful, the Canadian government subsequently bought the use of the patent and commissioned the manufacture of three of its machines by a company in Toronto. Later machines at the Bureau would be designed and built by resident inventors A.E. Thornton and F. Bélisle.

Fernand Bélisle's full name was Georges Etienne Fernand Bélisle, born in 1889 in the municipality of Wotton, Quebec. In 1923, R.H. Coats praised his work in a memo: "Mr. Bélisle is particularly good on machine tabulation. While in our employ, he invented an electric gang-punch machine which has been patented and which we are using at the Bureau. He has been in charge for some time of our horizontal sorting machines and has greatly increased their output; in fact, he has brought certain machines which handled only about 12,000 cards per day to a point where they are turning out nearly as many cards per hour." Mr. Bélisle is renowned as the developer of the Pantograph machine, used for punching cards since 1911, as the inventor of the electric gang-punch machine used in the 1931 Census, and as the inventor of the compressed-air sorter-counter machine used in the 1941 Census. In fact, one of the Bureau's six machines was loaned to the Government of Jamaica for the tabulation of its census of January 4, 1943.



Resident inventor, Fernand Bélisle, designing mechanical tabulators

MR. BÉLISLE IS PARTICULARLY GOOD ON MACHINE TABULATION

tape to feed into an IBM 360/65. At that time, the agency was also piloting facsimile transmission between the regional offices and Ottawa.

Chief Statistician Walter Duffett guided the Bureau through 15 years of fast-paced expansion and automation with the support of three assistant chief statisticians (ACSs). The agency had grown from a staff of 1,800 to about 5,000 by the time he retired. In fact, his habit of coming to visit each new employee to ask whether he or she were comfortably installed in Ottawa was never pursued by any subsequent Chief Statistician—the agency had just become too large. At the time of his retirement, H.L. Allen was the ACS assigned to "General Assignments" and assisted with management of the Bureau, Simon A. Goldberg was assigned to Integration and Development, and Lorne E. Rowebottom headed the Socio-Economic Statistics Branch. The remaining five branches (Administration, Economic Accounts, Financial Statistics, and Economic Statistics) were all administered by directors general. When Directors General positions were first instated at the agency, there was some hesitancy about the title, as it was thought to have "empire-building" connotations. For a time before the new position title stuck, some documents referred to the position, instead, as that of "Super Director."

There were eight regional offices at the time—Vancouver, Edmonton, Winnipeg, Toronto, Ottawa, Montréal, Halifax, and St. John's—responsible for enumeration and initial processing of the censuses of population, housing, and agriculture, the monthly Labour Force Survey, the monthly pricing of commodities and services for the Consumer Price Index, the Job Vacancy Survey and other special projects. They collected a variety of reports from local business establishments and provided assistance to users as well as local reference libraries as at this time there was no Internet to disseminate information.

Conversion to bilingualism

When the first *Official Languages Act* was passed in 1969, providing for equal status of English and French in the federal government, the Bureau followed suit. The Administration Branch included a bilingualism unit, which measured progress towards bilingualism objectives by reporting on language capacities, training of staff, and the availability of publications in both official languages. The agency was also taking part in a federal government initiative where units would be designated as "French Language Units" on an experimental basis. The creation of such units was part of the government's public service

SIMON ABRAHAM GOLDBERG

If Duffett was the stable force of the agency, Dr. Goldberg was the sparkplug for innovation. Simon Goldberg firmly believed that sampling was the path to the future, although this was a concept that divided the agency, which had historically been a census organization. He was an avid promoter of analysis and methodology. In fact, methodology at Statistics Canada owes a handsome debt to Simon Goldberg and his protégé, Ivan Fellegi, who were largely responsible for creating the agency's first methodology unit from the ground up.

Goldberg had immigrated to Canada as a child from Poland in 1927. He graduated from McGill in 1939, and then obtained master's degrees in economics from McGill and Harvard. After spending some time in the air force, he joined the Dominion Bureau of Statistics in the newly created Research and Development Section, which was set up to coordinate work in economic statistics and develop the income and expenditure accounts. Later, Goldberg would take a leave of absence to complete his doctorate at Harvard. He worked at the Dominion Bureau of Statistics from 1945 to 1972.

He was promoted in 1954 to Assistant Dominion Statistician, charged with the task of integration of statistics at the agency. He was a strong advocate of interdisciplinary teams and was among the first to recognize the potential impact of the computer at Statistics Canada. He had an innate ability to plan and separate the practical from the impossible, and was instrumental in the establishment of a planning function at the agency.

He was and still is regarded highly at the agency as the father of the Canadian National Accounts, through his vision for an integrated system, rather than a fragmented collection of indicators. He designed and co-authored Canada's first comprehensive publication of the National Accounts, and it was under his direction that Canada became the second country in the world to publish quarterly national accounts and the first country to develop data on income distribution by size. He is said to be one of the most important people to the history of the agency after Robert H. Coats, not only for his role in elaborating the national accounts, but also for building the methodology capacity of the agency along with other infrastructure elements, such as classification systems. Two of his important initiatives were that he created a research section in support of the national accounts and that he pushed for the agency to be a sample survey organization instead of a census organization—to provide for more timely

SIMON A. GOLDBERG WAS A FIRM BELIEVER IN THE IMPORTANCE OF RESEARCH AND DEVELOPMENT AND OF DECISION BY CONSENSUS

information for decision-makers. To enable this switch to sample surveys, he had the idea of fostering administrative data to create a business register. He was also largely responsible for the legal access to tax returns granted to the agency for the first time in 1971.

He was a firm believer in the importance of research and development and of decision by consensus, and was immensely popular at the agency, with many senior managers seeking his counsel. David Worton, in his history of the agency, would indicate that, in the later Duffett years, the agency was run more or less as a partnership, with many senior staff taking their cues from Dr. Goldberg. Dr. Fellegi is quoted as saying "He had a very powerful individuality. He just swept away obstacles in his path by sheer power of intellect. He really had very little formal line authority in the Bureau, except to make proposals. None of the Assistant Dominion Statisticians formally reported to him. De facto, everybody did."

"In many ways, the modern face of Statistics Canada was drawn by Simon Goldberg, Deputy Dominion Statistician in the 1960s. He alone realized how critical it was to develop, maintain and use the framework of the national accounts to organize basic economic statistics; how to improve their quality by constant confrontation between measurements of the same variables available from different sources; and how to use the framework of the national accounts as the training ground for young statisticians and economists." – J. Ryten, Statistics Canada Historical Compendium

Simon Goldberg left the agency in November 1972 on a 3-year leave of absence to take up the position of Director of the United Nations Statistical Office. He would serve there until 1979, before taking on a number of consultation positions.

Mr. Simon Goldberg passed away in 1985 at the age of 85, and the main conference room at the agency was named in his honour. He is described in a SCAN special issue as "one of those rare individuals in whom there is both a consuming desire for the advancement of a science and a heart-warming interest in the colleagues engaged in that work." Just prior to his death, he was nominated for the Order of Canada, but never received it, as it is not awarded posthumously.





Employees working in crowded offices, circa 1940

bilingualism program, designed to serve the public more effectively in either language, and to reflect the equal status of both languages. The agency chose four units—the two regional offices of Montréal and Ottawa, the Student Information Section of the Education Division, and the Building and Housing Permits Section of the Business Finance Division. Conversion of regular periodic reports to a bilingual format was under way; by 1971, 89% of the 620 publications were available in both French and English, up from 40% in 1970. This is not to say that bilingual documents had not been produced earlier—in fact, R.H. Coats had a translation staff for bilingual publications such as census reports, *The Daily Bulletin* and the *Canada Year Book*. The 1970s were an important time for the growth of bilingualism, and especially for the support of Francophones working for the public service in Ottawa. It was also in the early 1970s that Place du Portage was built to house various federal departments, as the government increased its presence in Quebec.

Equal opportunities for women

In 1970, the Royal Commission on the Status of Women published a groundbreaking report with recommendations to the federal government to ensure equal opportunities for men and women in all aspects of Canadian society, including in the civil service. The recommendations included updating the legislative system and addressing such critical issues for women as poverty, family law, the *Indian Act* and the need for a federal representative for women. In 1970, the Royal Commission created the Office for the Advancement of Women and encouraged other departments to find ways to foster opportunities for the advancement of female employees. In 1971, the first Minister responsible for the Status of Women was appointed; Status of Women Canada became a departmental agency of the federal government five years later. Statistics Canada created its Equal Opportunities for Women Committee in 1973, which reported directly to the Chief Statistician. For a short time, there was also publication of an in-house paper called *Action*, which publicized the activities of the committee. Federal government implementation of the Royal Commission's recommendations was an important step toward greater equality for women in the public service.

A SIGN OF THE TIMES

An example of the times was the Miss DBS Beauty Contest sponsored by the staff association. No married women could take part, and each contestant was judged based on "personal appearance which includes the clothes she wears, her poise and her personality." It was a popular contest, with 43 contestants, for example, in 1952. The winner would represent the Bureau in a competition against other departments of government, vying for the title of "Miss Civil Service." Such contests took place in the civil service up until 1973.

Innovation at work

The civil service had an incentive award program, which was first implemented at the agency in 1953. Cash or merchandise awards were offered for employee suggestions for improvements in any aspect of the civil service, under what was called the "Civil Service Suggestion Award Plan." In 1971, one such suggestion was for a "Census cardboard desk," which was subsequently processed for patenting under the *Public Servants' Inventions Act*. Each collapsible desk weighed about 8 pounds and cost $1.75 for the 1971 Census, compared to $39 for the usual wooden tables. The Statistics Canada administrative officer whose invention it was, Bill Butler, worked on his idea after seeing an American cardboard table which cost $8.50 but was too small for census purposes. He was awarded $5,000 for his invention, which saved taxpayers well over $500,000 in two censuses alone. The patent expired 20 years later, in 1992, although cardboard desks continue to be used today for census support units. When the temporary offices are closed down, the desks are folded up and recycled. Cardboard desks were also used by the U.S. Census Bureau in temporary field offices for their 1990 and 2000 censuses. While the desks are treated with fire retardant chemicals, apparently one U.S. office discovered a fatal flaw—they were no match against a malfunctioning fire sprinkler system!



EMPLOYEE NEWS GETS AN OVERHAUL

A new magazine for agency employees was introduced in 1972, called *Scan*. Its predecessors included the inaugural *DBS News*, which first appeared in the summer of 1931 (unfortunately no copies have survived the years); *Green Island News*, produced in 1946 while the Bureau was located on (surprise!) Green Island (now home to the John G. Diefenbaker Building, which served as Ottawa's city hall from 1958 to 2000; now mostly home to Global Affairs Canada employees); *DBS Pasture-ized News* first appeared in 1953, although the "DBS" was later dropped from the name; *Stat Monthly* followed from the end of 1954, followed by *DBS Staff News* from 1957 to 1959, and finally after 13 years of no staff newspaper, *Scan* was published from 1972 to 2000. Meanwhile today's staff newspaper *@StatCan* was first published in April 1997, and is still going strong 21 years later.

NOTABLE MILESTONES IN THE STATISTICAL PROGRAM

The early seventies was a pivotal time for the application of statistical methodology to the Bureau's programs. Although mechanical tabulation had begun at the turn of the century at the Bureau, computer tabulation had just been realized in the early 1960s, and its marriage with methodology resulted in great synergies. In the preceding years, subject matter divisions were relatively siloed and more or less entities unto themselves. Each division designed its own questionnaires, mailed them out, received, coded and tabulated them. However, as automation and the use of administrative data grew, so too did the need for a more integrated approach to survey development, collection, and processing.

A new Methodology and Systems Branch was formed in 1970, which allowed for better integration of the major disciplines involved in the development of survey and census designs and their automation. The branch was created to increase the reliability of statistics, improve timeliness, reduce compilation costs, facilitate the extensive use of data by establishing machine-readable databases, and develop software to create integrated databases.

The paper "A Theory for Record Linkage," by Dr. Fellegi and Alan Sunter, had recently been published in 1969 in the *Journal of the American Statistical Association*, marking a major milestone in the development of record linkage, and paving the way for more efficient use of administrative and other databases in the construction of registers and the compilation and analysis of statistical data.

The year 1971 marked the completion of the first *Canadian Occupational Classification and Dictionary of Classifications,* which had been a massive 5-year research and development project carried out jointly with the Canada Department of Manpower and Immigration. Previously, occupational classification systems had been produced internally for census use and were subsequently used throughout the agency. However, this was the first standard occupational classification prepared for use in Canada.

The agency was expanding the availability of small-area data, as interest in subprovincial



Employees working in mailroom, 1968

Enumerator for the 1966 Census



RESEARCH BEGAN ON THE DEVELOPMENT OF A SYSTEM TO PROVIDE CENSUS DATA AT THE LEVEL OF SMALL AREAS OF GEOGRAPHY

data grew as a result of greater involvement of the provinces in economic and social planning. Research began on the development of a system to provide census data at the level of small areas of geography, resulting in a geocoding system called the Geographically Referenced Data Storage and Retrieval (GRDSR) System and a storage, retrieval and tabulation system called Statpak.

It was also during these years that the feasibility of an address register was being discussed. A register of urban addresses would be established as a by-product of the 1971 Census, and was proposed as a sampling frame for the Labour Force Survey and other household surveys. Such a register had the potential to reduce field costs for future censuses and could be used for studies related to housing stock. Similarly, a central register of farms based on the 1971 Census of Agriculture was also in development, and was first used as the sampling frame for the 1972 December survey of crops and livestock.

These were also the formative years for the Central List of companies and establishments. The Central List started as a basic vehicle to standardize the classification of companies and their subunits. A major project in 1969/1970 expanded the list to cover all businesses in Canada and to enable classification by industry and point of employment. At the end of 1971, this list comprised 550,000 business names, each coded by industry and geography. A year later, the list would prove extremely difficult to maintain, and was phased out as the Business Register was phased in. The Business Register would become operational in 1972, and would initially cover all employers in Canada. In 1974/1975, the Register would be extended to include all corporations, including those who were not employers.

The Socio-economic Statistics Branch was responsible for the censuses of population, housing and agriculture, and vital and judicial statistics, as well as those on education, agriculture, health, family income, assets and liabilities. The branch was also responsible for the newly minted Field Division in 1970/1971, with responsibility for all of the Bureau's field survey activities. The division had previously been the Special Surveys Division, but was reorganized to expand its functions from data collection for a few large and critical surveys such as the Labour Force Survey to a larger survey base. The branch also had responsibility for the regional offices, provincial liaison, and consultative services. These would not stay long in the branch—as the Bureau would soon undergo the largest re-organization in its history, in 1972/1973.



Enumerator for the 1971 Census

The Labour Force Survey at the time employed 750 part-time interviewers who interviewed 30,000 households. The monthly Labour Force bulletin detailed employment and unemployment for Canada and by the five regions of Canada (which at the time

were Atlantic, Quebec, Ontario, Prairies, and BC), and in 1971 started to publish data by province. Supplementary questions and sometimes special questionnaires were included with the Labour Force Survey to collect information on subjects such as smoking habits, immigration, paid absence from work, rental costs, and movement of persons within Canada. Other social surveys were conducted separately, such as the National Food Expenditure Survey and Family Expenditure Survey, but used the Labour Force Survey sampling frame. In 1970, the Labour Force Survey was moved to the Labour Division from Special Surveys, and plans were being laid for quarterly and annual publications to supplement monthly data. The survey was also the subject of a telephone pilot study, which was designed to determine the effect of telephone interviewing on the quality of the Labour Force Survey data, on the non-response rate, and on the cost of collection. The pilot project would prove that the method was feasible, less costly, and produced higher response rates. As a result, telephone interviewing was introduced for 40% of the sample of 35,000 households interviewed each month.



Employees mapping, 1978

In late February of 1972, Duffett invited Dr. Sylvia Ostry, then-chair of the Economic Council of Canada, to participate in discussions about the Labour Force Survey, which at the time was undergoing a major review. There was increasing demand for additional information on the labour market in Canada, further to increasing levels of unemployment. A project team was established in 1971 to develop and implement major changes, involving virtually all aspects of the survey, and extensive user consultations were carried out. While the redesigned survey would not be implemented until 1975, there were significant changes made to the survey in 1972. Analysis began to be based on seasonally adjusted data in February; data by sub-provincial area were first released in April; the data first became available on CANSIM; and industry estimates were classified according to the new 1970 Standard Industrial Classification.

The first Job Vacancy Survey, introduced in 1971, provided information on occupational job vacancies by occupational group and province. These data were the first official measure of labour demand in Canada, with output to be used for decision making on training, vocational guidance, and general labour market analysis. Annual averages of minimum hiring rates associated with job vacancies were constructed, with the objective of developing hiring rates by occupation, industry, province, and census metropolitan area. There were, however, "Help-Wanted Indexes" developed in the federal Department of Finance, which extend back to 1962, and were based on help-wanted advertising space in selected daily newspapers across the country. This index was taken over by Statistics Canada from the Department of Finance in 1973/1974.



Interviewer for the Labour Force Survey, Newfoundland, 1972



Main Computer Centre, 1969

The onset of the National Accounts

Mr. Duffett, when he was at the Bank of Canada, contributed to the development of a conceptual framework for the first set of National Accounts for Canada, along with many other key players, including Simon Goldberg, Claude Isbister, and Agatha Chapman. In the 1930s and early 1940s, there was no single widely accepted way to define and measure national income. Key milestones to their eventual development include the work of John Maynard Keynes in the United Kingdom, who used macroeconomic theory in 1936 to justify government intervention in the business cycle. In the United States, economist Simon Kuznets would become the first to develop a conceptual framework for U.S. national income and product accounts. He was later awarded the Nobel Prize in economics, in 1971. In Canada, R.H. Coats set up a Committee on National Income Statistics in 1939, but the Bureau did not make much headway until the establishment of a central research and development staff in 1944 to support the post-war reconstruction efforts under the direction of George Luxton and his assistant director, Agatha Chapman, who was on loan from the Bank of Canada.

In the fall of 1944, experts from the United States (Milton Gilbert), the United Kingdom (Richard Stone), and Canada (George Luxton) held discussions in Washington on the development of a theoretical framework for national income statistics, referred to as the Tripartite Discussions, which resulted in agreement on the main essentials of the system. Luxton died at the age of 31 in 1945, and Claude Isbister was appointed to take over as director of the Research and Development Staff, with Chapman in charge of developing the accounts. In the summer of 1945, the dominion/provincial conference on reconstruction was held, at which Isbister and Chapman presented estimates of gross national product from 1938 to 1944 and income and outlay accounts by province. These were readily accepted and became the foundation for the calculation of equalization payments. Isbister and Chapman also attended the Princeton Conference in December 1945, which was the first meeting of the sub-committee on national income statistics of the League of Nations committee of statistical experts. This was the first attempt at international standardization.

The first annual estimates of balanced income and expenditure accounts in Canada were published in April 1946. These data would support a new federal program of fiscal equalization for the provinces as well as the goals established in a 1945 government White Paper on Employment and Income by Professor W.A. Mackintosh, formerly of Queen's

THE BEGINNING OF THE COLD WAR IN CANADA



Agatha Chapman was born in England in 1907, and immigrated to Canada with her family. Her great-grandfather was Sir Charles Tupper, a Father of Confederation and one-time prime minister. She earned a master's degree in economics from the University of Toronto, which awarded her the prestigious Maurice Cody Fellowship. She also served as the president of the University College Women's Literary Society. She began working as an economist at Sun Life Assurance in Montréal and attended meetings of the McGill chapter of the Student Christian Movement, an active movement focusing its attention on topics such as poverty, disarmament and fascism.

Meanwhile, in September 1945, Igor Gouzenko, a young cipher clerk posted to the Embassy of the USSR in Ottawa, defected with secret documents revealing the existence of a Soviet spy ring in Canada, particularly within the federal public service. The Canadian government placed Gouzenko and his family under protection and this news was kept secret while Prime Minister King and his American and British counterparts discussed the matter. Prime Minister King set up a Royal Commission (the Kellock-Taschereau Commission, headed by judges Robert Taschereau and Roy Lindsay Kellock) to investigate. The matter became public in February 1946 when an American columnist began leaking rumours of the issue. The Commission recommended the arrest of 13 people, two of whom were friends of Agatha Chapman's. They were rounded up by police and taken to the RCMP barracks in Rockcliffe to be interrogated. The Commission ultimately reported that the spy ring had been operating since 1924 inside several government departments in Canada, in the British High Commission in Ottawa, and in the joint Canadian-British atomic research project. The Gouzenko affair marked the beginning of the Cold War for Canadians and exposed the country's vulnerability in security matters, ultimately resulting in the restructuring of the national security system.

Agatha Chapman testified before the Commission in March 1946. That June, she was identified by the Commission as a "spy" and a communist "cell leader" who had aided the transmission of secret information to the Soviet Union. At her hearing, she indicated being a member of study groups discussing socialist and Marxist literature—such meetings were frequented by people of interest to the committee. While she worked at the Dominion Bureau of Statistics, her *de facto* employer was still the Bank of Canada and, although she had not yet been charged, the report had become public. As a result, she was put on leave with pay pending resolution of the issue. In an effort to deal with the associated stigma (of being named but not charged), in August she asked to be put on trial to clear her name and restore her reputation. The trial was interrupted after about 4.5 hours, with the accusations withdrawn, as the Crown failed to produce any persuasive evidence that she was a Soviet agent. The defence never even had the chance to present its case.

Her life, despite the clearing of her name, would never return to normal. The Bank informed her that it would not reinstate her in her research post, and she was ostracized from the Canadian civil service. Claude Isbister wrote to Richard Stone in Cambridge indicating her clean slate, her considerable talents, stating that it was "unfortunate that she was not to be allowed to return to the government service." She was quickly hired at Cambridge as a research economist by Mr. Stone, and left Canada in March 1947. After three productive years at Cambridge, she returned to Canada in the 1950s, and formed a research consultancy in Montréal. She tragically committed suicide in 1963. It was suggested that she had never recovered from the trauma of the Gouzenko affair.

Employees at the agency may recognize her name as the title of one of the agency's awards—the Agatha Chapman Innovation Award, which recognizes those who have demonstrated a commitment to innovation and dedication to the development of noteworthy ideas.

University in Kingston, Ontario. He had been called to Ottawa during the war to help manage the war effort, working for Minister C.D. Howe, responsible for the Department of Reconstruction and Supply. He felt it was important to reassure the country in a time where uncertainty and confusion were beginning to develop about the transition to a peace-time economy that the difficult economic conditions that arose prior to the war would not redevelop. His paper referred to stable levels of employment and income and higher standards of living as an aim of government policy.

Simon Goldberg, Canada's father of the National Accounts, had the vision to adapt the White Paper into the core of the agency's economic programs, designing the country's first quarterly national accounts. The approximately 50 staff of the research and development unit were tasked to take the economy apart, classify the parts, attach measurement to them, and fit them together into a conceptual framework of the national accounts system. It would take many years to develop, with the first quarterly national accounts appearing in 1954 and the first major reference manual appearing in 1958.

FLASHBACK TO EARLY CENSUSES



Early censuses were labour intensive enumerations. In explaining the time required, the first bulletin of the 1891 Census indicates a staff of enumerators of 4,300 who "had to traverse the immense area of Canada by every imaginable method of locomotion. A steamer with enumerators on board went in and out the deep indents of the Pacific Coast line as far as Alaska, thence to Queen Charlotte's Islands, to enumerate the people. Pack-horses were required in the mountain regions of the same province to carry the enumerators and their portfolios through the valleys which run among the hills of the Rockies. Dog-trains were a necessity in Saskatchewan. To obtain the population on the northern slope of the "Height of Land" in Ontario and Quebec, a canoe expedition started from the head waters of the Lievre River to go by lake and river and portages to Albany River, at James' Bay. Camping outfit and canoes were needed to enable the enumerators to take the population in the Nipissing district just beyond the "Height of Land." The enumerators in Manitoba had, now to foot it, now to go by buckboard, and now by boat, and in one instance the man, losing himself, had to save his own life by slaying and eating his horse. Many townships in Algoma had to be taken by slow and toilsome pedestrianism. For the north shore of the Gulf of St. Lawrence a schooner had to be chartered, the enumerators put on board and dropped at different points till the Straits of Belle Isle were reached, from which point the schooner was directed to the Isle of Anticosti, the Census of which having been taken she returned to the Straits and sailed along the coast picking up the enumerators and returning to the mouth of the Saguenay River. Delay is therefore inevitable. No time limit can be given the enumerator."

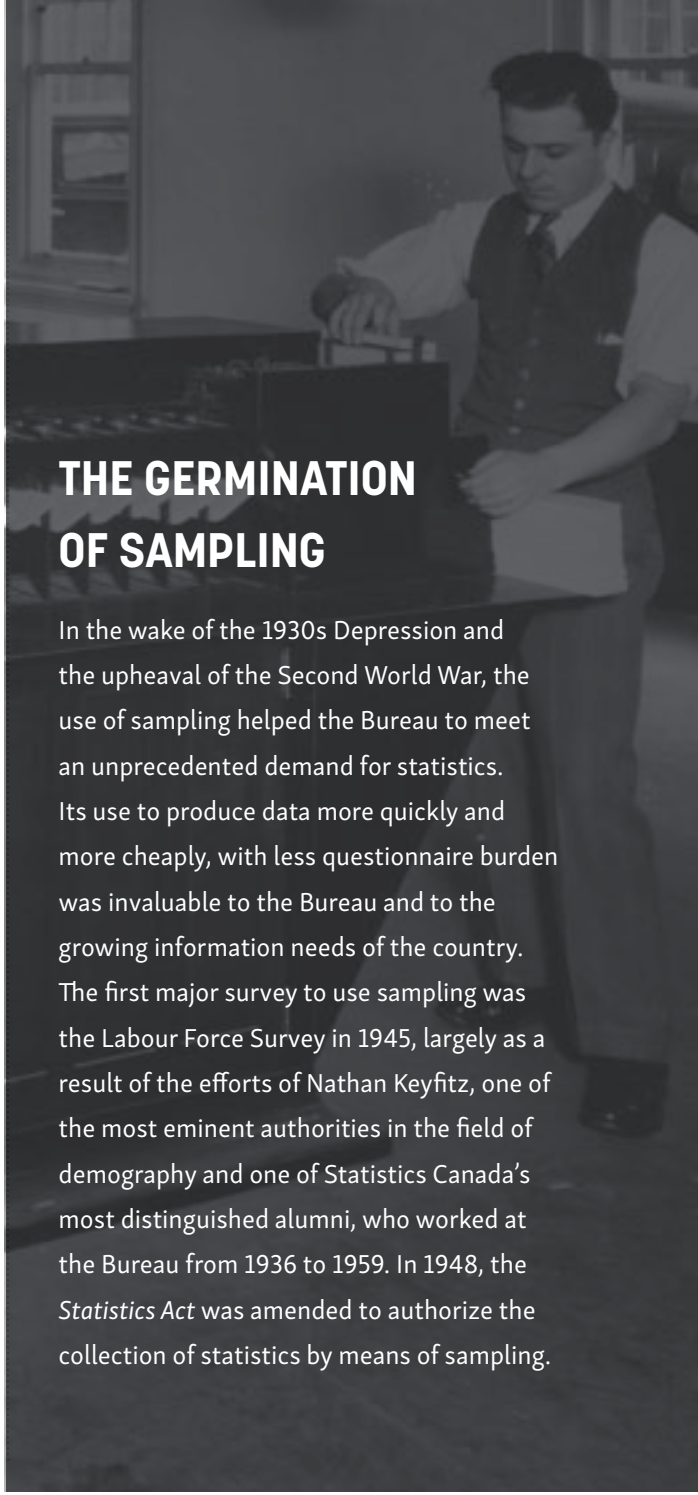
The Census program

The first census taken by the newly established Dominion Bureau of Statistics post-1918 was the 1921 Census, which had five separate schedules or questionnaires covering population; agriculture, animals and animal products; fruits not on farms; and manufacturing and trading establishments; as well as a supplemental questionnaire for persons who were blind and deaf.

The 1971 Census saw several major improvements and innovations. It was the first census during which self-enumeration was adopted in all but three percent of the population located in remote areas (examples given included the "Newfoundland outports" and the Northwest Territories) and institutions. This was a major change in census collection methods, as every census up to that point had been conducted by interview. Self-enumeration minimized enumerator error and improved data quality, while addressing privacy concerns and respondent burden. Hand in hand with self-enumeration, telephone assistance was first introduced to help Canadians complete their questionnaires.

Sampling also became an integral part of the 1971 Census, with most questions asked of 1 in 3 households. The "short" form, comprising basic population and housing questions, was distributed to two-thirds of Canadian households, while the "long" form contained additional housing and socio-economic questions. The first use of sampling in a Canadian Census was for the 1941 Census of Housing, which collected a descriptive record of every 10th occupied dwelling in the Dominion. The 1941 Census followed a decade of depression and almost two years of war, and the associated social and economic effects were unprecedented. The rapid expansion in agricultural and factory production during the war had brought about widespread movements in population, which created acute housing shortages. There was also concern about the state of housing. After the First World War, a Royal Commission had been appointed to study Canadian social and industrial problems and had reported on "the scarcity of houses and the poor quality of some of those which did exist." It was recognized that the report had not been based on comprehensive statistics. Therefore, the 1941 Census of Housing was deemed important to the recovery after the war.

The 1971 Census saw the introduction of geo-coding to allow custom tailoring of areas of interest. Another important innovation was the reverse record check, which sought to determine how many people were missed by the census. It was also the first census

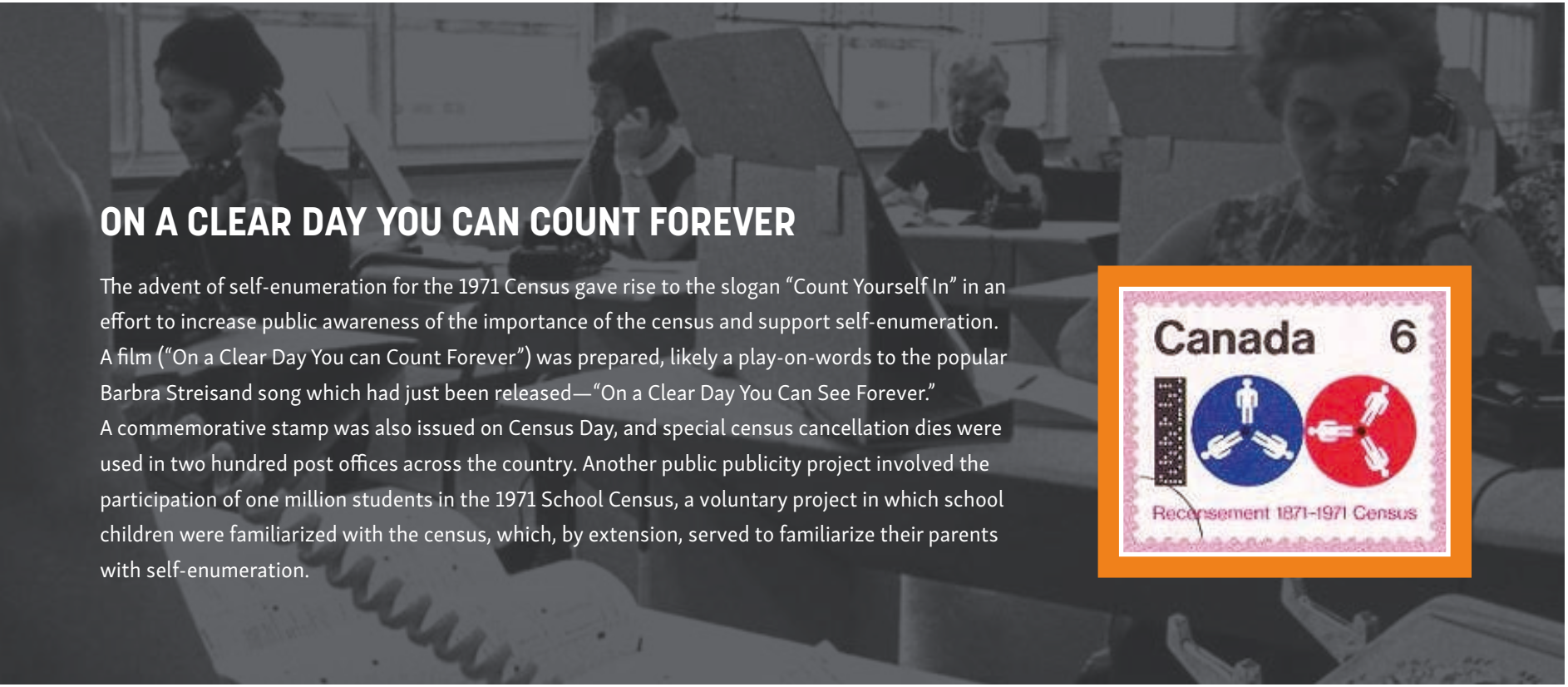


THE GERMINATION OF SAMPLING

In the wake of the 1930s Depression and the upheaval of the Second World War, the use of sampling helped the Bureau to meet an unprecedented demand for statistics. Its use to produce data more quickly and more cheaply, with less questionnaire burden was invaluable to the Bureau and to the growing information needs of the country. The first major survey to use sampling was the Labour Force Survey in 1945, largely as a result of the efforts of Nathan Keyfitz, one of the most eminent authorities in the field of demography and one of Statistics Canada's most distinguished alumni, who worked at the Bureau from 1936 to 1959. In 1948, the *Statistics Act* was amended to authorize the collection of statistics by means of sampling.

to carry out an agriculture–population linkage, combining data from the Census of Agriculture with data from the Census of Population and Housing. As well as manually coding write-in answers for the population and housing questionnaires, regional processing offices hand-matched Census of Population and Housing and Census of Agriculture questionnaires to prepare for the later computerized linkage in Ottawa. The result was a rich socio-economic information base facilitating new analytical possibilities.

The 1971 Census witnessed protests by women's liberation proponents over the designation of the husband as the head of the household. In 1971, the head of the household was defined as "the husband if both husband and wife are present [or] the parent (regardless of age or dependency) if living with unmarried children." Five years later, the definition changed to refer to either husband or wife; by 1981, the reference to a head of the household had been dropped altogether, in favour of a somewhat less hierarchical "Person 1."



ON A CLEAR DAY YOU CAN COUNT FOREVER

The advent of self-enumeration for the 1971 Census gave rise to the slogan "Count Yourself In" in an effort to increase public awareness of the importance of the census and support self-enumeration. A film ("On a Clear Day You can Count Forever") was prepared, likely a play-on-words to the popular Barbra Streisand song which had just been released—"On a Clear Day You Can See Forever."
A commemorative stamp was also issued on Census Day, and special census cancellation dies were used in two hundred post offices across the country. Another public publicity project involved the participation of one million students in the 1971 School Census, a voluntary project in which school children were familiarized with the census, which, by extension, served to familiarize their parents with self-enumeration.

THE INTERNATIONAL SCENE

Statistics Canada's international contributions began in the 1920s with R.H. Coats' participation in the First Conference of Empire Statisticians, at which he expressed strong advocacy for statistical centralization. The agency continued to contribute in the 1930s to the statistical work of the League of Nations (which would later be replaced by the United Nations) and the International Labour Organization. In 1935, the British Government enquired whether the Government of Canada would allow secondment of an officer from the Dominion Bureau of Statistics to go to Palestine for three years as head of a proposed Bureau of Statistics. Sedley Anthony Cudmore would take up the post (and would later become Dominion Statistician after the retirement of R.H. Coats). By the 1940s, after a lull during the war, the provision of technical assistance internationally became a common practice.

In the 1970s, Statistics Canada continued to take an interest in the statistical needs of developing countries, including support for the processing of the 1970 Census in the West Indies. In cooperation with the Canadian International Development Agency, the agency's former IBM S/360-30 was relocated to Kingston, Jamaica, at the Computer Centre in the University of the West Indies, for its census processing.



Robert H. Coats at the Second Conference of Commonwealth Statisticians, held at the Dominion Bureau of Statistics in Ottawa, 1935

COMMUNICATION WAS BY TELEPHONE OR TYPE-WRITTEN MEMOS

The Bureau also helped with preparations for the 7th Conference of Commonwealth Statisticians, held in India in the autumn of 1970, especially as the previous conference had been held in Ottawa in 1966. The 1966 conference in Ottawa was a two-week affair, held from September 19 to 30, and was attended by 22 delegates from 15 countries, including Walter Duffett, Simon Goldberg, and Lorne Rowebottom from Canada, and as observers from the Commonwealth Secretariat-General, the Republic of Ireland, and the United Nations Statistical Office, as well as specialists from the Bureau and from the West Indies. The conference was officially opened by Mr. Mitchell Sharp, then-Minister of Finance, who, when he was Deputy Minister of Trade and Commerce, had recommended Walter Duffett to his Minister the Right Honourable C.D. Howe for the job of Dominion Statistician. The first Commonwealth Conferences had been held in London in 1920, Ottawa in 1935, Canberra in 1951, London in 1956, and Wellington in 1960. This 6th conference was targeted at promoting contacts and collaboration between senior officials in each Commonwealth country as, over the years, the growth of independence from the United Kingdom had increased the number of countries attending.



Employee working with a Vari-Typer machine, circa 1950



A MORE ACTIVE ROLE IN SHARING INFORMATION

The agency's most recognized data bank goes by the moniker CANSIM, which stands for the Canadian Socio-Economic Information Management system. The Information Division was responsible for the implementation of the first phase of CANSIM. The system was launched in 1969, first programmed in FORTRAN and COBALT, with data fed into the system using punch cards. It was originally developed in the United States at Southern Methodist University in Texas, and was brought to Canada in 1965 by the Economic Council of Canada, and subsequently turned over to the Dominion Bureau of Statistics in 1966. The first data included in the databank were those from the National Accounts. In 1968, the system contained 2,500 time series, requiring "gigantic memory requirements" of 100 kilobytes. In 2017, the more than 72 million time series took up more than 300 gigabytes of storage space. Electronic access to CANSIM was introduced in 1972, first to employees of the federal government through remote terminals and, then, a year later, to the general public through secondary distributors. It would not be repatriated to Statistics Canada until 1984.

A growing focus on timeliness

In the early seventies, the agency also moved toward a more active, rather than responsive, publishing role, and there was a significant drive to improve the timeliness of publication, with initial focus on statistics of employment and payrolls, imports and exports, retail trade, and industrial production. This stemmed largely from a 1968 task force on government information, which conducted a user survey,



Employees working in print shop, circa 1960

whose respondents criticized the timeliness, usefulness, clarity, and accessibility of the Bureau's data. The Bureau-wide drive to effect gains in timeliness starting in the late 1960s would precipitate analysis of the causes of delays and means of eliminating them. Of course, longer-run plans would include conversion to automatic data processing. Recall that computing was in its infancy yet, and there were no desktop computers or email. Computation of results involved lugging around heavy boxes of punched cards, using machines to punch cards, and using card-readers to submit data to the computer, which would then spit out results on bulky paper printouts. Communication was by telephone or type-written memos, and dissemination of information to the public was only by means of paper publications, which were warehoused and ubiquitous. In fact, the national accounts were compiled in pencil, in enormous, well-thumbed ledger books. The issue of timeliness was of particular importance to the accounts, where the quarterly accounts were being released with a 90-day lag, which users found to be much too slow, and a good deal slower than the lag in the United States for the same data. Steps were taken to reduce the time required for the compilation of the accounts to 60 days, where it remains today.

The introduction of a policy on official release

Until the early 1970s, the agency was still struggling with the effects of having grown in size very quickly. While Duffett had made organizational changes to strengthen top management, there were still varied approaches in different areas of the agency to things like the pre-publication release of material. Pre-release material was provided by hand, by mail, and by coded telegram to various departments, regional offices, provincial governments, and even companies and industry associations. There were many long-standing arrangements, which sought for example to improve timeliness or improve relations with business respondents by promoting cooperation in exchange for information. Pre-release policies were not clearly described nor disseminated throughout the agency, and, in July 1971, the Executive Committee expressed dissatisfaction about the pre-publication release of material and recommended the development of a policy on the release of data. Discussions ensued throughout the fall. However, in October and November of 1971, Labour Force Survey data were leaked to the Montréal Gazette. At this time, Statistics Canada and the Department of Manpower and Immigration were collaborating on joint press releases for the Labour Force Survey, with the Department of Manpower contributing to the analysis of the data. Both departments carried out investigations as to the possible source of the data leak. Duffett asked the Department of Finance to carry out an investigation as well, noting in his request letter that "the reporter in question indicated to my staff that his source of information was a good one and that he proposed to continue to use it." In one instance, a Department of Finance officer spoke to the Press at 7:50, thinking the release was at 7:30, although the official release was at 8 am. To curb the data leaks, a policy on official release was developed, which included systematic use of *The Daily* for all releases. The Chief Statistician would also need to approve all pre-releases of information. The joint press release of the Labour Force Survey was dropped, and Statistics Canada fully took on the analysis of the data. This was not because the Department of Manpower and Immigration was responsible, but merely to cut down on the number of people privy to the pre-release data. The Labour Force Survey data was also released two days earlier, and pre-release was discontinued to all parties except the departments of Finance, Labour, and Manpower and Immigration. The source of the data leaks was never discovered.

THE CHANGING OF THE GUARD

In the late 1960s and early 1970s, the agency was trying to establish a planning system to set priorities and guide long-term planning. There was a central planning group established under Dr. Simon Goldberg. The planning did not seem to be advancing very quickly, and the Executive Committee kept sending the planning group back to the drawing table. The agency knew it needed to plan better, as did the Privy Council Office and the government at the time, but it just did not seem to be able to get there quickly enough.

In February of 1972, Simon Goldberg's paper "Towards the development of a comprehensive medium term plan for Statistics Canada" had been presented to the second meeting of the Interdepartmental Advisory Committee on Statistics. The paper was intended to provide a framework and background for the Committee's deliberations, and to serve as general guidelines and perspective for the planned 1973/1974 program reviews. The Committee had been set up in 1971 to seek the objective views of other federal government departments with respect to the content of the statistical program and the agency's service capacity. The Committee was short-lived, as it did not quite have the objectivity that was intended—it quickly morphed into a lobby for promoting departmental interests.

There was an added complication: the Bureau had grown so quickly and had lost much experienced personnel in preceding years as a result of the previous differences in pay afforded by the Civil Service Commission between departments involved in the policy-making process and those not. Recommendations to the centre for promotion of personnel by the Bureau had previously involved prolonged, time-consuming and frustrating negotiations. The differing pay structure meant that the Bureau could not recruit or retain experienced staff, who would leave for other departments. While the Glassco Commission report would recommend an end to the pay discrepancy for Bureau employees, the effects of this loss of experienced staff was likely still being felt in the early 1970s.

In January 1970, a Cabinet Committee was discussing the topics to be included in the 1971 Census and requested a memo on how priorities were determined in meeting the government's statistical requirements, and how the needs of departments were ranked to ensure the Bureau's priorities corresponded

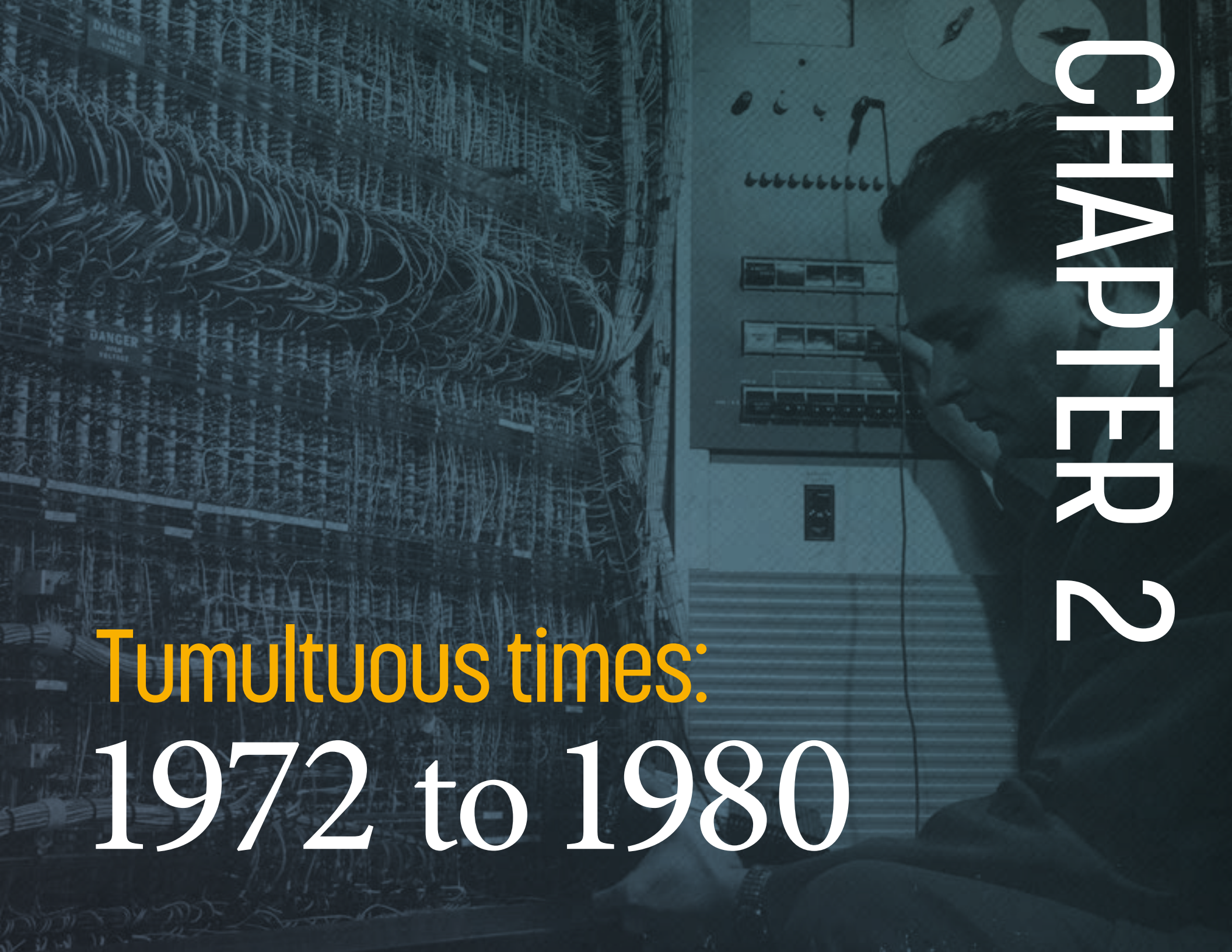




with those of the government as a whole. They also requested information on the extent to which duplication existed in the collection of information and how duplication could be avoided. A report was prepared by Duffett and submitted to the committee by Minister Pépin, which noted some of the difficulties the agency encountered in determining the long-run needs of the government and of government departments, and made a number of suggestions. One suggestion was the establishment of an advisory committee of senior government officials chaired by the Privy Council Office (PCO). It recommended that the agency seek to improve and extend interdepartmental consultation procedures, that the PCO make available to the Chief Statistician documents that reflected the implementation of government priorities, and that both parties consult at regular intervals. It would not be until three years later that, under Dr. Ostry, the PCO would first share relevant Cabinet documents to help improve the agency's perception of emerging informational requirements for policy formulation and evaluation and help it to be responsive to federal needs. Duffett had tremendous difficulty gaining cooperation from the PCO, and his letters to the PCO and to Minister Pépin indicated growing frustration that he could not fully answer the request of the committee without their input and cooperation. The PCO explained its delay in responding by indicating that there were fundamental questions as to the role and function of the agency that they were working through first. Duffett felt that there was a lack of confidence in his judgement and signalled his desire to retire. He officially retired on June 30, 1972, and went on to become vice-president of the Conference Board of Canada. A few years later, he took up the post of vice-president and later, president, of the Inter-American Statistical Institute. He was also the founding editor of the *Canadian Business Review,* which was launched in 1974. He passed away in 1982.

Upon Duffett's retirement, Minister Pépin, the Minister responsible for Statistics Canada, gave a speech at his retirement party in May at the National Arts Centre. He spoke of his direct and thorough approach, noting that he was a precise, quietly purposeful and persuasive man. "We in Cabinet recognize his achievements as many and substantial. We have seen the Bureau grow in public esteem under his leadership and in international stature. We have seen Statistics Canada grow into a far stronger and much more productive organization than it was when Walter took it over 15 years ago."

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CHAPTER 2

Tumultuous times: 1972 to 1980



Data users in the Statistics Canada Library, 1974

THE STUDY FOUND THAT THE AGENCY NEEDED TO STRIVE TO BE RESPONSIVE TO THE NEEDS OF ITS VARIOUS USER COMMUNITIES AS WELL AS TO ANTICIPATE NEW REQUIREMENTS

THE ROLE OF CANADA'S NATIONAL STATISTICAL AGENCY

With a new *Statistics Act* just passed in 1971, the role of the agency was very much a topic of discussion within the government. A 1968 task force on government information had found that users were very critical of the timeliness, usefulness, clarity and accessibility of the data produced by Statistics Canada, and federal government departments were increasingly vocalizing their discontent with the agency's responsiveness to their growing and complex needs, particularly those related to policy analysis and program performance evaluation. In April 1972, the agency's executive committee appointed a departmental study group to examine its image and recommend measures for improvement. The group comprised senior representatives from the subject-matter branches and was to determine what image the agency should try to project, and how. The report was produced under a tight time constraint, as it needed to also feed into recommendations being prepared by the Chief Statistician on the organization and resources of the Bureau. Questions were arising at the time about what the role of a central statistical agency should be, and how it should best function to ensure that priorities were being met in a time of exponentially increasing information demands.

The consensus of the image study was that the agency should strive to attain a number of general objectives. The agency was to be, and be seen to be, central to the business of government and producing not data but information (including carefully abstracted statistics, a combination of statistics with analysis, interpretation, and illustration) with the best practicable combination of timeliness, accuracy and scope. The relevance of that information needed to be continually demonstrated, and its purpose made consistently visible. The information produced was to be objective, and the agency was to be and be seen as "rigorously a-political." The agency also needed to be communicative with active dissemination of information. Lastly, the study found that the agency needed to strive to be responsive to the needs of its various user communities as well as to anticipate new requirements.

The caveat was that Statistics Canada could not aspire to this image until it corrected the operational imbalance between (1) the collection, compilation and physical production of data, and (2) the marketing of its information to users and the communication of information about the agency. The recommendation was therefore that it strengthen its marketing and communications activities and create a new Statistical Information Service to provide better service to users. The report also recommended the development of a basic media relations course for Statistics Canada personnel, and the creation of a parliamentary affairs position.



Main computer centre, 1970

A NEW CHIEF STATISTICIAN IS APPOINTED

In June 1972, Walter Duffett retired, and Dr. Sylvia Ostry was appointed Chief Statistician of Canada. She was not unknown to the agency, having been brought in as director of Special Manpower Studies by Simon Goldberg, a position she held from 1964 to 1969. She was known to be extremely productive and highly energetic. This was not an easy switch for the agency, having been for 15 years under the wing of Walter Duffett, someone who had been particularly strong at maintaining a calm and stable environment. Dr. Ostry was brought in, in a sense, to shake up the agency. There is some thought that the government had not been particularly at ease with the agency at the end of Duffett's tenure. This wish to rejuvenate was not unique to Statistics Canada. In fact, the increasing interdepartmental mobility of deputy ministers at the time was meant to discourage insularism and encourage new leadership ideas.

This was also perhaps why Simon Goldberg was not appointed to be the next Chief Statistician, although some insist to this day that he was the prime candidate at the time. He was eloquent, brilliant, and very much a driving force behind automation at the agency. However, he was known to have been a loyal Assistant Chief Statistician to Walter Duffett, something that may not have been an asset to a government seeking to fundamentally change the ways of the agency. While Simon Goldberg was known to be very independent and a harbinger of new ideas, he perhaps was not new enough. Walter Duffett's retirement was an opportunity to introduce fresh ideas and a blank slate by bringing in experts from outside the agency. On the flip side, history would show that such a change could also result in discordance with the culture of a large organization created incrementally over many years. Jacob Ryten, in his introduction to a compendium highlighting important articles over the history of the agency, would aptly summarize that "there is a permanent tension within statistical organizations between the will to innovate and the sense that continuity must be preserved."

Such tensions were played out across the senior management of the agency – between the more conservative faction and the newer faction (including Simon Goldberg and his protégé Ivan Fellegi) who were embracing change and who eagerly welcomed the introduction of computing at the agency.

The task at hand

One of Dr. Ostry's first tasks at the agency was to take the reins of the study begun by Walter Duffett, for the purpose of making the agency a more responsive and effective source of information for the country. The study was given additional authority and urgency by a letter from Prime Minister Pierre Trudeau dated June 1, 1972, which congratulated Dr. Ostry on her Governor-in-Council appointment and outlined his perspective on the role of Statistics Canada and the way in which he hoped it would develop. He referred to her uncommon ability to keep in mind the broader perspective of the public service as a whole while at the same time being engaged in specific departmental duties, and expressed his hope that she would encourage this attitude throughout the agency.

The Prime Minister's letter referred to the list of priority problems identified by the government when it took office, in 1968, noting that "information" was at the top of the list. Some early work on the priority had culminated in the creation of Information Canada, which was a new department with the responsibility of improving communication between the government and Canadians. The other priority element was the question of how best to ensure



Sylvia Ostry,
Chief Statistician of Canada, 1972-1975

SHE HAS BEEN AWARDED 19 HONORARY DEGREES FROM UNIVERSITIES IN CANADA AND ABROAD

DR. SYLVIA OSTRY

Not only was Dr. Sylvia Ostry Canada's first and only female Chief Statistician, she was also Canada's first female deputy minister. In response to media, she always rejected the notion that her appointment had any element of "tokenism"—her resume certainly spoke for itself. She was born in north Winnipeg in 1927 and studied economics at McGill, where she earned a bachelor's degree in economics in 1948 and a Master of Arts in 1950; as well, she earned a doctorate from Cambridge and McGill in 1954. After teaching and doing research at McGill, the *Université de Montréal*, and the University of Oxford, she joined Statistics Canada, serving as Assistant Director for Research and then Director in the Labour Division, from 1964 to 1969. She held the position of Chair of the Economic Council of Canada for three years, before returning to the agency in 1972 to serve as Chief Statistician.

Her career at Statistics Canada came to an end in 1975, when she was reassigned to the Department of Consumer and Corporate Affairs as Deputy Minister, a post she held until 1978. The other positions held by Dr. Ostry during her career include Head of the Department of Economics and Statistics at the Organisation for Economic Co-operation and Development (OECD), Deputy Minister of International Trade, Ambassador for Multilateral Trade Negotiations, and Canada's sherpa—Prime Minister Brian Mulroney's Personal Representative—at the G7 summits from 1985 to 1988. She has been awarded 19 honorary degrees from universities in Canada and abroad. She received the Order of Canada in 1978 and was promoted to Companion of the Order of Canada in 1990, the highest award in the national system of honours. She was also Chancellor of the University of Waterloo from 1991 to 1996, and was named Chancellor Emerita in 1997.

In 2002, to celebrate Dr. Ostry's 75th birthday, *The Sterling Public Servant* was produced by former Assistant Chief Statistician Jacob Ryten. This was a festschrift, a collection of papers from eminent contributors on subjects related to her career and reflecting the relevance and importance of her academic and governmental contributions to Canada. It included congratulatory letters from all prime ministers living at the time.

that the government received and collected the relevant information on which to base its operational policy and planning decisions. He asked her, as one of her first duties, to undertake a study of the relationship between the agency and its clients and to make recommendations for assisting the government in determining statistical priorities. She was to consider how the responsibilities and resources for the collection and processing of statistical data should best be allocated between Statistics Canada and other federal agencies. She was also to look into procedures for enabling ministers to express their views on statistical priorities as well as the proper relationship between the Chief Statistician and the policy-making process to improve the agency's anticipation of statistical requirements. Lastly, she was asked to complete a review of the structure, financial arrangements and operating procedures within Statistics Canada, and to seek improvements in the usefulness of statistics, especially those required for program performance evaluation and policy analysis. Just a short list!

A month later, Dr. Ostry met with both the Chair of the Public Service Commission and the Secretary of the Treasury Board, to whom she indicated in later correspondence: "I hope that over the course of the next few months my discussions with your officials will expedite the process of review and assessment of the agency and will culminate in a rational and feasible proposal for structural and organizational changes."

Dr. Ostry would remark in an address to businesses at a conference on statistics for corporate decision-making that "it has become commonplace for statisticians to note the explosion in the demand for information, but the observation is no less true for its frequent repetition. The progressively larger role of government in the areas of economic and social policy may be lamented by some sturdy spirits among you, but it is a fact of life which, for us, manifests itself in unremitting requests for more information on more and more subjects… The needs of business are fast becoming as insistent and demanding as those of government. To navigate in the waters of today's complex national and international business milieu requires increasingly sophisticated guidance systems." The national statistics system was meant to be that guidance system, and it required an overhaul.

WHO'S WHO IN OTTAWA

Few might realize that we had a celebrity in our midst. Dr. Ostry knew everyone who was anyone in Ottawa. A lengthy *Saturday Night* magazine article about Dr. Ostry by George Bain, written while she was working for the OECD in Paris in 1981, notes that "next only to Pierre and Margaret, no pair had more celebrity in Ottawa in the 1970s than the Ostrys." The article also remarks that "Two things almost everyone — including Sylvia Ostry — says about her are that she is intensely ambitious and that she works like a dog at whatever she is doing."

A FUNDAMENTAL LOOK AT OURSELVES

In her first month as Chief Statistician, Dr. Ostry asked her senior staff to reflect on some of the major issues that would confront the agency in the 1970s, inviting proposals on all facets of the Bureau's operations, including its objectives, strategy, structure, and issues. She called it a "fundamental look at ourselves," and indicated that all proposals would be treated confidentially and should be directed to her personally. There were a great many heartfelt memos authored to that intent, outlining what Statistics Canada in the 1970s would be like, how the agency might step up to meet the needs of the times, including some of the current challenges facing the agency.

Centralization

There were a number of recurrent themes, one of which was growing frustration over the centralization of functions. Centralization was new—recall that the agency was extremely siloed, each division essentially operating largely as a separate entity, and that there was a great deal of frustration with competition for



Employees pledging their oath of secrecy, circa 1960

the attention of the service areas — especially when each division was used to having its own dedicated services at its beck and call. One memo spoke of the challenge of obtaining services as akin to "leading a cavalry charge into a swamp." Communication within the Bureau was lacking as well — for example, one director spoke of not knowing for several months that a particular centralized service area had been created. One memo to Dr. Ostry spoke of the apparent contradiction in the agency's organization: how to reconcile the autonomy granted to the Bureau's divisions with its ideological commitment to integration. Some of the disjointedness of the organization and lack of communication undoubtedly arose as a result of physical separation of the different divisions of the agency. Even in 1974, the head office of Statistics Canada was operating from nine different buildings dispersed throughout the city of Ottawa.

Most of the senior staff recognized the challenges brought about by the tremendous growth of the Bureau under Duffett, with a number of memos indicating that the agency could not afford to get much larger. Not only had there been tremendous growth in staff and work, but the complexity of that work was also increasing along with expanding automation. This tied in with another important theme of the memos—the need to more clearly delineate the role and objective of the agency and of its divisions and to do better at setting statistical priorities. There was fuzziness about where responsibilities lay — this was likely exacerbated by the centralization drive. Reference was made to a shortage of senior officers who could focus on strategic issues rather than daily operations.

Human resources

On the human resources side, the memos indicated that staff morale was low and that there were serious problems with recruitment and retention of experienced personnel. Some mentioned the possibility of more opportunity for staff rotation to develop their flexibility and cultivate interest. The narrow specialization of staff was felt to produce excellent statisticians but not necessarily excellent managers, especially in an increasingly interconnected world. By 1974, a job rotation task force would be established to look into the possibility of a job rotation program at the agency. Senior management would find that the program was indeed feasible.

There was no central recruitment of employees at the time. Any manager who needed to hire employees would have to obtain a list of eligible applicants from the Public Service Commission and then interview the applicants of his or her choice. Such a decentralized process would have exacerbated the insularism of the divisions.

Relationship with other departments

There was a general feeling that attitudes in the agency often conveyed a lack of concern for, or disinterest in, other federal departments and the issues they faced. It was felt that the agency was seen merely as a figure factory whose sole goal was to produce data without too much regard to what the statistics measured. There was a need for more data analysis and better marketing to let the world in on the richness of available information. One memo indicated that the Bureau was seen to be conservative, slow-moving, and inflexible, and was considered a junior member of the federal family. Another concluded rather ominously "the future shape of the Bureau must be determined at once. Band-Aids and aspirin will no longer suffice; major surgery and rehabilitation are required. It would be well to initiate corrective measures before terminal bureaucracy brings on a lingering and painful end."

A TASK FORCE IS BORN

From the deluge of lengthy memos written in response the Dr. Ostry's request, it was obvious that senior managers were in favour of a re-organization and self-renewal. The arguments for significant restructuring were strong, and an equally strong leadership would be needed in order to overcome the inertia within the agency. Although it was agreed that change was needed, bringing it about would not be easy in light of frustration with the many recent attempts in this regard. Assistant Chief Statistician L.E. Rowebottom would aptly assess "our files are graveyards of task force reports, planning papers, and organization charts. Many of our managers have grown cynical and frustrated with the process and with the agonizing task for trying to agree upon and implement change."

Dr. Ostry set up a task force in August 1972 with the goal of evaluating the state of Canada's statistical system and Statistics Canada's role in it. She described it as an intent to clarify and reaffirm the agency's service role towards its clientele, to develop visible and understandable procedures for showing what the agency was reasonably able to do in response to growing demands, and to minimize costs, as the agency's budget had expanded considerably over the previous 15 years. The task force consisted of two senior officers from Statistics Canada, an external consultant, and a representative of the business community with extensive marketing and systems experience. The external consultant had led extensive consultations with federal government users and central agencies, and the group worked essentially full-time, carrying out its review in under six months.

The major findings of the study and subsequent investigations were to improve priority-setting mechanisms in the use of the statistical resources; make the agency's statistical products and services more relevant and accessible and promote their use more vigorously; assume a stronger coordinating role vis-à-vis the statistical activities of other federal departments; and maintain the confidence and support of the public.

Planning and priority-setting

A number of recommendations were advanced by the task force to create more visible and understandable priority-setting mechanisms for the efficient allocation of resources. In a paper presented to the Eighth Conference of Commonwealth Statisticians, author David Worton explains that Statistics Canada had traditionally tried to be "all things to all people" and that this was possible in a relatively stable



Sylvia Ostry, Chief Statistician of Canada, at the Eighth Conference of Commonwealth Statisticians, 1975

demand situation, or a situation where its budget was ever-increasing as was the case for most of Duffett's and Ostry's tenures. However, by the early 1970s, it became clear that this was not sustainable—i.e., that something had to give.

A new Policy, Planning, and Evaluation Branch, reporting directly to the Chief Statistician, was created to provide continuous assessment of the statistical system, to ensure that the agency

was meeting its mandate, and to help facilitate the integration and balance of the program plans of each of the fields. The evaluation of ongoing program activities would allow the identification of activities which no longer contributed effectively to the attainment of current objectives. The idea was that any net growth would be funded by reallocation of resources within the existing base. In time, this approach would be found to not work well — as it removed necessary decision-making power from senior management.

The report also recommended the development and maintenance of a medium-term plan. There was a great deal of emphasis on the need to forego "incremental planning," or "disjointed incrementalism," referring to the tendency toward a vested interest in what one has been doing for a long time, with meaningful planning happening only at the margins. Medium-term planning was intended to provide a sense of direction for management, assist the orderly and realistic scheduling of interrelated development, and help the agency adjust to urgent policy needs. Such plans were also intended to provide others with a better understanding of the long-term developmental nature of many statistical activities, and help users see how the agency expected to address their particular needs.

Cost-recovery and marketing

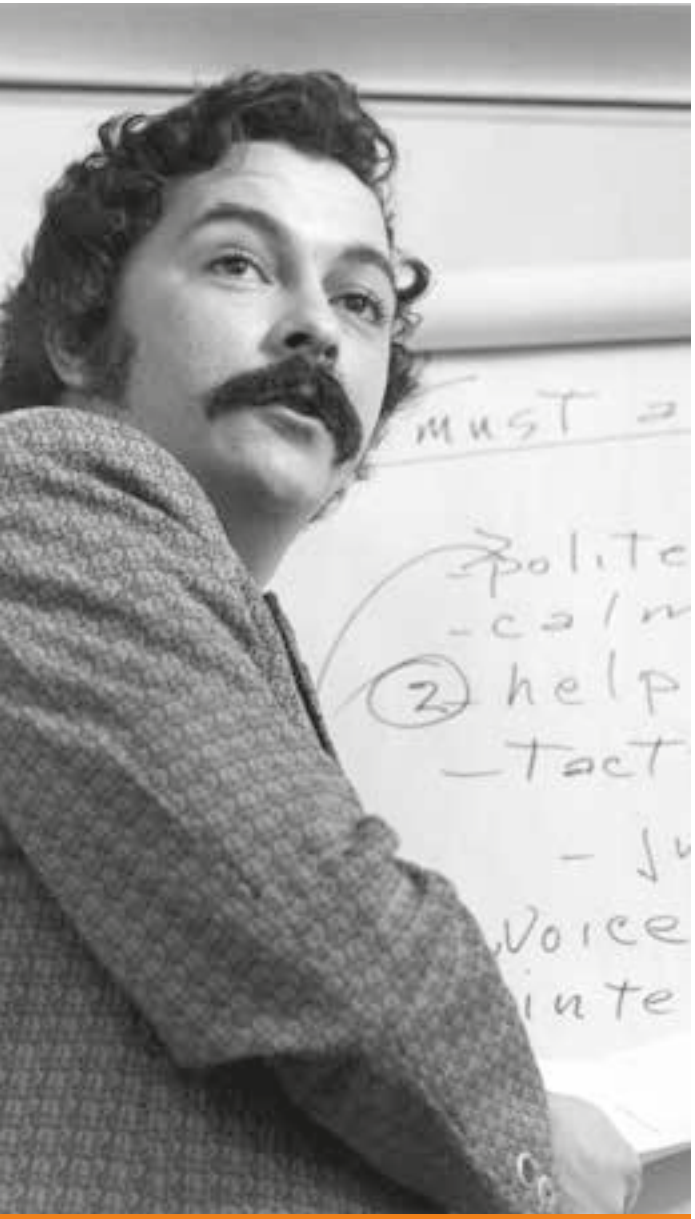
The review showed a need to increase timeliness and flexibility in order for the agency to respond to ad hoc information needs and to produce customized tables and analyses for data users. An important outcome was thus the advent of a cost-recovery program to service user-specific needs. A Special Surveys Co-ordination Division was therefore created to carry out new and ad hoc household surveys on a cost-recovery basis. The new division brought together responsibilities for management of household surveys, which had previously been scattered among a number of divisions, and acted as the focal point for special survey work requested by outside agencies. For example, the household income and expenditure area was transferred out of the Prices Division. However, information on the Labour Market was still shared between the Labour Division and the Special Surveys Division, such that conceptual knowledge and management decisions and accountability were divided. The new division was necessary and successful, but in hindsight could have been even more effective.

It was apparent that users were largely unaware of the depth, breadth and potential of the information available to them as Statistics Canada lacked a central focal point for documenting and making known the availability of its data holdings. A Marketing Services Branch was created, headed by an Assistant Chief Statistician, to explain what information was available and how it could be used, and to play a strong role in outreach and consultation. High priority was also given to the extension of User Advisory Services. The number of data access and use specialists was doubled, and regional offices were added as part of the re-organization to make more information available to more people. A pilot project was carried out in Montréal and Toronto regional offices where computer terminals to access the Canadian Socioeconomic Information Management System (CANSIM) were installed. This project was ultimately a success.

The new User Advisory Services focused on developing an effective service for statistical users and maintaining liaison with provincial government bodies. This unit held data usage workshops for municipalities, banks, libraries, and industry. The agency was also conducting seminars across Canada on the work of various subject-matter areas. In 1972/1973, the focus was on labour statistics and agriculture census results. The agency published booklets for business owner-operators, including most notably a series entitled "How to profit from facts," including "How a manufacturer can profit from facts," "How a retailer can profit



Advisory Services employee, circa 1980



Employee teaching telephone technique, Doorstep Diplomacy, 1974

from facts," and "How contractors and builders can profit from facts." In the interest of greater co-operation and collaboration, the Marketing Services group began to play a strong role in bringing together subject-matter staff with the various industry associations.

In 1974/1975, regional staff visited all of Canada's public libraries with complete collections of the agency's publications. A news bulletin *Federal-Provincial Statistical News* was also released regularly—it was originally designed to keep the delegates of the federal-provincial conference on economic statistics informed of developments in the agency and in the provinces, but was later broadened in scope. A feedback system designed to improve the flow of information on users and uses of statistics from the regions became operational at the end of 1974. This was also the year in which a program called "Doorstep Diplomacy" was launched to improve interviewers' awareness of the value of good respondent relations. The User Advisory Services Division also acted as the coordinator and secretariat for statistical meetings—in 1976/1977, this included 21 formal federal-provincial meetings.

In 1973/1974, the new marketing services branch produced a booklet providing a summary of the agency and its programs designed for the layperson. A new weekly publication targeted to the layperson, called *Infomat*, replaced the old *Statistics Canada Weekly*. *Infomat* was aimed at audiences who were not necessarily familiar with statistics. By 1974, all publications had become bilingual. While print publications remained the principal medium of dissemination, there was steady growth of other media including CANSIM, microfiches and magnetic tapes.

Coordination of statistical activity

In an address delivered to a conference in 1974, Dr. Ostry refers to the inescapable dilemma of all statistical systems at the time: the burden which the satisfaction of user needs simultaneously placed upon them as respondents. The replacement of direct statistical collection with the exploitation of administrative records was being explored to reduce respondent burden, the most notable progress at the time being the new ability to access income tax returns of corporations and unincorporated businesses.

To this end the report also recommended strengthening the "Rule of 10." Other federal departments would conduct surveys for program evaluation purposes, but there was no suitable mechanism for ascertaining whether the required information already existed

STATISTICS CANADA ESTABLISHED SATELLITE OPERATIONS IN OTHER FEDERAL DEPARTMENTS TO ENHANCE RESPONSIVENESS BY FACILITATING COLLABORATION AND JOINT DETERMINATION OF DATA NEEDS

elsewhere in the public service, whether the information required justified the response burden, or even whether the instruments used were technically sound. The "Rule of 10" was first implemented in 1966, and had grown out of a recommendation from the Glassco commission, namely, that all departments intending to request statistical information from more than 10 respondents provide the Chief Statistician with copies of the request and all accompanying forms, schedules and questionnaires 10 days before issuing them to respondents. The report recommended greater advance notification of proposed surveys, the review of technical specifications, and suggested means of enforcement.

Administration of the rule would be placed under the responsibility of the new Special Surveys Coordination Division, and a publication was produced to disseminate information about the surveys reported by other departments. The agency produced support material for other departments outlining the procedures that the agency suggested they follow in preparing submissions and describing the aspects of their survey plans that the agency would review. This "Rule of 10" would eventually prove ineffective as it was not adequately followed or enforced.

In hindsight, it is evident that forcing collaboration was not a feasible solution. This regulatory requirement paled in comparison with a robust outreach program in terms of cultivating good relationships and sharing statistical expertise. It has been suggested that, had the agency taken the necessary initiatives to discuss needs with departments, anticipate their requirements, and demonstrate that the agency's input could prove useful to them, they may have welcomed — rather than resented — the participation of Statistics Canada. The surveys taken by other departments could have been used as signals indicating unmet needs, changing requirements, or a communication gap that needed to be addressed.

The review also suggested that Statistics Canada establish satellite operations in other federal departments to enhance responsiveness by facilitating collaboration and joint determination of data needs and to help ensure that administrative files were exploited to the greatest extent possible. In 1975, the Judicial Division established satellite offices within the Ministry of the Solicitor General to service the statistical needs of both departments, as well as those of the Royal Canadian Mounted Police (RCMP), the Canadian Penitentiary Service and the Canadian Parole Board.
In 1977, to facilitate more efficient use of data, a Science Statistics Centre was established as an experimental satellite within the Ministry of State for Science and Technology, and concurrently a new publication program for science statistics was implemented, including a service bulletin and an *Annual Review of Science Statistics*. The unit would return to the agency in the early 1980s. A successful satellite centre of the Transportation and Communications

Division of Statistics Canada had existed since 1966. The Aviation Statistics Centre was located within the Canadian Transport Commission and had a mandate to produce aviation statistics for Transport Canada, the Commission and Statistics Canada. Most data processed by the centre were collected under authority of the *Aeronautics Act* (as opposed to the *Statistics Act*) and used principally for regulatory and policy purposes. This would end up being the only lasting statistical satellite. The Aviation Statistics Centre was repatriated to Statistics Canada after deregulation, 31 years later, in 1997.

Structural re-organization

The structure of the organization was essentially revamped in 1973, as it set out to implement the recommendations of Dr. Ostry's task force. This involved the strengthening of top management, the consolidation of activities that should work more closely together, and investment in some underdeveloped functions. One of these underdeveloped functions was economic intelligence for policy analysis. In the early 1970s, some statistical offices were reluctant to provide contextual analysis for fear that objectivity or neutrality could be compromised. Dr. Ostry signalled an increased investment in analytical capabilities and an increased emphasis on policy relevance.

The agency was re-organized into fields — Census, Economic Accounts and Integration, Business Statistics, Household and Institutional Statistics, Statistical Services, and Marketing Services. Branches to support these operations included administration and planning. Under Duffett, many new initiatives had been added as a directorship reporting directly to him, resulting in a great many direct reports. With Ostry's re-organization, the number of areas reporting directly to the Chief Statistician were reduced from 13 to 8, and six Assistant Chief Statistician and two Director General positions were created, each heading a particular subject-matter area or area of functional service. The creation of new Assistant Chief Statistician and Director General positions also instigated the assimilation of new expertise from outside the agency. These eight individuals reported directly to the Chief Statistician and, with her, made up the Executive Committee, the nucleus of the management of the new organization. The intent was to allow directors general to focus on the day-to-day management of the programs, while allowing the assistant chief statisticians to focus on planning and policy questions and overall corporate management. This new organizational structure implied a greater need for project management, inter-disciplinary teams working collaboratively, and cost accounting. While it took a number of years to optimize the structure and function to create successful strategic and operational teams, the basic structure of the agency has remained more or less the same ever since.

As a result of the 1972 reorganization, the management style at the agency was also changing—the mid-1970s marked the beginning of what is now referred to as matrix-management, a style of management to increase flexibility and more efficient use of resources. With specialized separate service areas, interdisciplinary project teams became the norm and project management became crucially important. This was a major cultural shift for many program directors who had grown accustomed to, and who had only ever known, hierarchical authority. Project management skills became valued, as did collaborative teamwork and creative problem-solving. This also required time-reporting and financial systems that supported both program and functional management. All agency-wide financial and resource management information systems were consolidated into one integrated unit. The new integrated management information system, known as "Revision of the Management Process, Practices and Systems" (or REMAPPS), provided cost-behaviour data on the agency's operations to help managers to carry out timely planning and control of programs and projects.

"THE STEPS WE ARE TAKING CONSTITUTE AN ATTEMPT TO ISOLATE PIVOTAL ISSUES AND TO DEAL WITH THEM IN THE MOST DYNAMIC MANNER POSSIBLE, GIVEN PERVASIVE RESOURCE CONSTRAINTS AND THE EXIGENCIES OF ON-GOING DATA PRODUCTION. I AM NOT TRYING TO SELL THE CURRENT STATE OF THE BUREAU AS A STATISTICAL UTOPIA. THERE ARE STILL MAJOR PROBLEMS, BUT I THINK WE ARE MOVING IN THE RIGHT DIRECTION AND I ENCOURAGE YOU ALL TO PARTICIPATE IN THE PROCESS OF CHANGE."

(DR. OSTRY, IN A SPEECH FOR STATISTICS CANADA'S PROFESSIONAL ORIENTATION COURSE, 1973.)

To remain, or not remain, centralized

It was becoming apparent that the agency no longer had a virtual monopoly on statistical data collection, production, maintenance and control. With the proliferation of computerized information management systems in other departments and agencies, more and more statistical activities were taking place in other departments. The study thus assessed Statistics Canada's role as a centralized statistical agency. History had demonstrated that centralization by itself was not sufficient to achieve the objectives of co-ordination. The study noted two options. The first option was for the government to channel most of the additional collection and production activity to Statistics Canada, but at the risk of greater friction with other departments and great difficulty in managing such an extended program. The second option was to accept and encourage the trend toward decentralization but seek to influence it constructively by using the agency's central vantage point to provide a greater degree of coordinating and advisory support. The latter option was embraced: by the late 1970s, the agency was offering a program of publications and instructional seminars, including questionnaire design workshops, information on contracting out survey research, and a directory of individuals, companies and other organizations offering survey research services.

One of the recommendations that came out of the extensive review was to ensure a stronger

role for the Treasury Board Secretariat so that it could provide the necessary support to Statistics Canada's coordinating role in the national statistical system. However, before machinery could be devised for assigning responsibilities and for coordinating the national statistical system, it was first necessary to determine what statistics and administrative data were being collected or were planned to be collected by the various branches of the federal government. To this end, an Interdepartmental Task Force on Federal Statistical Activity was authorized by Cabinet in 1973—it was chaired by Ian Midgley, Director General of the General Statistics Branch, and consisted of members from five departments as well as the Bank of Canada, reporting to the Committee of Senior Officials on Government Organization.

The Task Force reported to the Committee that it found existing statistical data sources to be underused and identified a lack of coordination in the statistical activities of government departments. It made a series of recommendations for improvement, including that a "statistical master plan" be developed to outline in broad terms the role and activities appropriate to Statistics Canada and those appropriate to other departments.

The Task Force also proposed the creation of a clearinghouse and data documentation system to enable exchange of information, and the development of guidelines to allow for an increase in accessibility to both survey and administrative data consistent with the principles of confidentiality and privacy. A more co-ordinated dissemination function would indeed be established in 1975 by the creation of a referral centre or "statistical clearinghouse" for users seeking not only data produced by Statistics Canada but also data produced by other contributors to the national statistical system, including other federal departments and agencies, the provinces, institutions and businesses. It turns out that this master plan was not successful, the clearinghouse was relatively short-lived, and eventually the interdepartmental task force quietly faded away.





ORGANIZATIONAL CHANGES

Bilingualism continues to grow

When the *Official Languages Act* was passed in 1969, recognizing French and English as the official languages of all federal institutions in Canada, it did not explicitly grant public servants the right to work in the official language of their choice. In June 1973, a Parliamentary Resolution on Official Languages in the Public Service was passed which confirmed this right, subject to certain conditions. In 1977, Treasury Board adopted a set of official languages guidelines, which established measures to help implement the official languages policy, including allowing conditional appointment of unilingual employees to bilingual positions provided they agreed to take language training. It also transferred the responsibility of complying with the Official Languages Program to departments. The agency was therefore involved in developing and implementing a systematic plan for its own official languages program in 1978/1979, and carrying out training and information sessions on rights and obligations with respect to official languages. The agency offered day and evening courses in both languages, and quickly became a leader in developing bilingual courses and reference material for computer sciences by 1980. It recruited heavily from the CEGEP in Hull, which resulted in the agency having the strongest Francophone participation rate in the Computer Science group of any federal government department.

The agency was experimenting with the honour system for attendance and, in 1973, began to use a new attendance recording system that eliminated the need for most employees to sign a daily attendance sheet. Each employee would instead complete a monthly form and submit it to his or her supervisor for review and tallying.

A legal officer is assigned

In 1973, the agency was starting to ensure standard terminology with respect to the legal authority on questionnaires, as some made no reference to legal authority, while others included non-standardized wording. With an agency that had grown so quickly and had very stove-piped areas—there were naturally many differences in how things were carried out from area to area. This was also the year where a part-time legal officer was first assigned to the agency, an assignment that would become full time the following year. Dr. Ostry had requested

STATISTICS CANADA GETS TWO NEW BUILDINGS





The R.H. Coats building was being built at the time, and was ready for occupancy in 1975. Some will be amused to learn that the Simon Goldberg Conference room initially had shag carpeting, and that the 26-floor tower was planned to have a total of "25" floors, with the cross-over floor being 14. The architects had designed the first floor to be that above the ground floor, while those installing the elevators and the buttons had other ideas. After numerous delays, staff moved in at a rate of about two floors per week.

The agency was also in the early planning stages for another new building to accommodate the Census and Business Statistics fields. Treasury Board had given its approval for the building in December 1973, and a consulting firm was engaged to conduct an "attitudinal survey" of the new occupants of the R.H. Coats building to assist in the planning for the new building. Construction was completed on the Jean Talon building by 1979, and large portions of the Economic and Social Statistics fields moved in. The building was expressly designed for statistical operations with large data-handling and processing areas, and would house about 2,000 employees. The second floor, as well as most of the first floor and the basement, were specially-secured areas occupied by census operations.

the assignment of a lawyer as it was felt that the Department of Justice had not been very responsive to Statistics Canada's requests for assistance with recent census refusals. The need for legal advice was growing, especially in connection with the interpretation and application of the newly revised *Statistics Act* and the resulting new agreements with other federal and provincial departments, especially those under section 10. Other areas requiring legal expertise included internal questions such as confidentiality, the registering of CANSIM as a trademark, and large contracts with outside agencies.

An era of greater federal-provincial cooperation

The revised *Statistics Act* of 1971 prompted a revision of existing federal-provincial co-operative agreements as well as the development of new agreements. In 1972/1973, staff were loaned to the Prince Edward Island government for a few months to examine the organization and use of information from administrative data files in provincial government departments. Another staff member was loaned to the Saskatchewan government for three months to help define the terms of reference for the province's new Statistical Information Centre.

Plans also began for the newly-minted Federal-Provincial Consultative Council on Statistical Policy, scheduled to hold its inaugural meeting in late 1974, where members would set out the terms of reference for future cooperation. The seed for such a committee had been planted a few years earlier. In April 1971, a discussion paper prepared for the May 1971 advisory committee meeting of the Federal-Provincial Conference on Economic Statistics and other conferences and committees suggested that a council on statistical policy be created along with a series of statistical committees to continue the work of existing committees under the same or similar terms of reference. A few years later, in May 1973, at another meeting of the Federal-Provincial Conference on Economic Statistics, agreement was reached to broaden the terms of reference to embrace all fields of statistics, and to restructure the Council's composition and procedures so as to permit more effective consideration of broad policy questions. The first meeting of the Federal-Provincial Consultative Council on Statistical Policy was held in November 1974. In May 1974, letters of explanation and the proposed terms of reference were sent to the premiers of all provinces and the commissioners of the territories. Initially, there was a wide disparity of interest. However, the response regarding whether to form the council was unanimously in favour, and one delegate was appointed to represent each government on the Council. Nunavut's separation from the Northwest Territories in 1999 instigated the shift in the name of the committee to become inclusive of the territories in 2000. The overarching committee is known in 2018 as the Federal-Provincial-Territorial Consultative Council on Statistical Policy.

One particular federal-provincial agreement in the spring of 1972 resulted in the Gross National Product Division undertaking a research program aimed at estimating the provincial distribution of total Canadian gross domestic product (GDP). A joint review with the provincial statistical offices and other federal departments was under way, as part of a continuing project with the Federal-Provincial Committee on Provincial Economic Accounts, to address challenges of concepts, methodology and data sources. By 1976/1977, annual GDP for the provinces and territories was completed on an experimental basis for the period from 1961 to 1974. This work was indeed promising and would evolve to take root in a much larger way 15 to 20 years later. A revision of measures relating to real domestic product for 1961 to 1971 was also completed, which allowed the Industry Product Division to proceed with a 1971 reference-based publication with continuous production data by industry going



Main Computer Centre, 1970

back to the mid-1930s. Discussions were also initiated with provincial statistical offices to conduct joint surveys on capital and repair expenditures.

The Computer Centre operates around the clock

Word processing equipment was beginning to be used to improve and expedite general typing. There were five typing and transcribing units at Statistics Canada in the early 1970s, as well as an in-house terminal network with about 150 terminals where users could remotely enter their computer jobs, develop programs, and edit text. A study on the feasibility of capturing data in machine-readable form with Optical Character Recognition equipment was conducted. In 1973, the agency's computer system was an IBM S370/165 with core capacity of 2 million bytes and a disk storage capacity of 3.6 billion bytes. By the next year, this capacity had grown to 3 million bytes and 5.2 billion bytes of storage; even so, the agency could not keep up with the demand and needed to purchase computer resources from outside. As it was, the computer centre operated around the clock Monday to Friday (3 shifts on a 24-hour basis), and eight hours a day on weekends and holidays. Dual disk-drive mini-computers were installed in the eight regional offices to be used initially as a data-gathering and transmission system for the Labour Force Survey. Data capture was quickly moving away from punched cards toward the direct capture of data on magnetic disk and tape. Greater automation was permitting reduced lag in response to requests for data, and allowing more data to be released more quickly. In fact, by the mid-1970s, Trade Statistics publications were almost entirely produced by word processing, although there was a great deal of resistance to full computerization of publications.

MILESTONES IN THE STATISTICAL PROGRAM

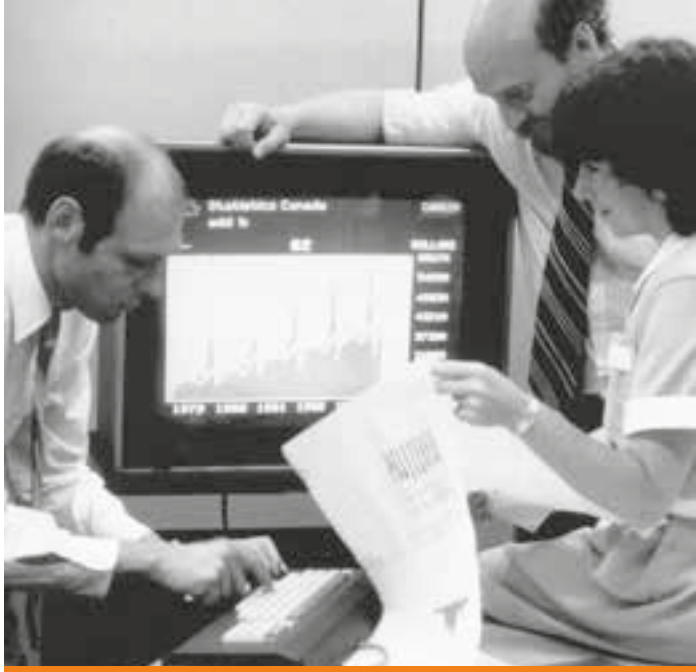
Key releases on government finance and the System of National Accounts

In 1973/1974, the agency was developing standard accounts classification frameworks for government financial transactions, as well as participating in a federal interdepartmental committee on the classification of federal revenue, expenditure, and asset and liability transactions, and in an OECD workgroup to develop a standard international framework. March 1975 marked the first release of *Government Finance in Accordance with the System of National Accounts*, which was developed to facilitate current analysis of the government sector. The release presented revenue and expenditure detail for all subsectors of the government by quarters for the years 1970 to 1973.

The year 1975 would also mark the publication of comprehensive documentation on Canada's System of National Accounts, which were a vital reference source for economists in a world where most information was still paper-based. This was a three-volume series, the first volume presenting a complete record of the annual income and expenditure accounts estimates for the years 1926 to 1974; the second giving quarterly estimates for the years 1947 to 1974; and the third containing a thorough explanation of definitions, concepts, data sources and methods relating to the income and expenditure accounts.

Trade statistics

One of the milestone achievements of the early 1970s was that Canada and the United States began talking the same language in merchandise trade statistics. This resulted from the work of a Canada-U.S. Trade Statistics Committee, which assembled a framework for reconciling, harmonizing, and monitoring counterpart trade statistics in 1971. The two countries completed a reconciliation of the current account of the balance of payments, including receipts and payments for services and transfers in addition to those for merchandise trade. This was an important step in paving the way for the eventual elimination of differences in trade information published by the two countries. A paper on the topic was written in collaboration with the U.S. Census Bureau and was presented at the 18th session of the United Nations Statistical Commission. This work was the beginning of an ongoing reconciliation program and would also spawn the beginning of similar work with other trading partners.



Employees working with CANSIM, Statistics Canada's key socioeconomic database, circa 1980

Seasonal adjustment and time series analysis

The development and management of CANSIM was continuing, although access was still available to federal departments and agencies only through remote terminals. A new computer-based econometric model called "Candide" was developed to assist economists and statisticians in forecasting medium-term economic trends. One of the first uses of the model was made by the Economic Council of Canada to develop economic projections to 1980. Work was also progressing on seasonal

adjustment—a new seasonal adjustment technique was developed for the Labour Force Survey in 1974/1975. By 1977/1978, the well-established Seasonal Adjustment and Time Series Analysis staff in the Current Economic Analysis Division were developing fundamental research in the field of seasonal adjustment and time series analysis.

A new emphasis on social statistics

Dr. Ostry's task force report had also indicated a need for increased emphasis on the development of concepts and unifying frameworks for social statistics and social indicators. Government priorities included a new emphasis on social and environmental problems, but social scientists had not yet succeeded in developing social models analogous to economic models to aid in the process of decision making. A significant revision and expansion of the Labour Force Survey was already under way, marking the first complete overhaul of the survey since its launch in 1945, and was set to come to fruition in 1976. The expanded survey would respond to demands for new and more comprehensive labour market data, including a larger sample to provide more reliable data at levels such as the provincial and sub-provincial levels, and with more detailed cross-classifications. The monthly sample would increase from 35,000 to 55,000; by 1977/1978, it would grow to about 62,700 households. A new pilot was also

THE AGENCY MAKES ITS MARK IN SEASONAL ADJUSTMENT

Dr. Estelle Bee Dagum was a Statistics Canada employee from 1972 to 1993. She rose to the directorship of the Time Series Research and Analysis Division, a position she held for 12 years. In 1980, she was the first-ever recipient of the Washington Statistical Society's Julius Shiskin Award for outstanding work in economic statistics. The award was established in honour of one of the most respected statisticians in the United States, who began experimenting in the 1950s with computer programs to seasonally adjust data. His twelfth experiment, which he called "X-11" (his first was X-0), was the most successful; however, it did not identify major changes in trends and cycles fast enough. Meanwhile, work at Statistics Canada on short-term forecasting with auto-regressive integrated moving averages (ARIMA) had been progressing. The ARIMA principles had been worked out in the 1940s and 2 U.K. statisticians had automated the method in 1970. Dr. Dagum developed a combined X-11-ARIMA seasonal adjustment method, which as a result became the fastest and most reliable method for discovering major changes in trends in activities that varied seasonally. The method was first adopted in 1975 for the seasonal adjustment of the Labour Force Survey, and established Statistics Canada as a leader in the field of seasonal adjustment. In 2000, Dr. Dagum also received the Career Excellence Award.

undertaken to study the feasibility of conducting the survey on Indian reserves. An investigation was under way into the use of administrative data for labour programs and into the development of a long-range statistical program on employment, earnings and hours.

A social statistics research program was in its infancy at the agency and included the production of a compendium of statistics highlighting social concerns in Canada — which would become *Perspective Canada*, first published in the fall of 1974. The compendium was to help address the growing demand for social indicators, and to serve as an aid in assessing the relevance and limitations of existing statistics in the social realm. The research program was to increase the focus on individuals and their passage through their life stages, institutions that influenced that life passage, as well as the physical facilities created and maintained for the benefit of the individual. A social statistics field, covering labour, personal finance, health, social security, education, science, culture and justice, would later be created, in 1979/1980.

One of the new publications in 1972 was Pension Plans in Canada, a series based on an administrative data bank created with the co-operation of the Federal Department of Insurance and the provincial authorities of Quebec, Ontario, Saskatchewan and Alberta. Tabulations were then run for the participating federal and provincial pension commissions. The publication was so popular that the first publication required two reprints to meet demand, and more provinces were eventually added to the series.

These were also the formative years for demographic projections. A model initially developed for Ontario at the Institute for Quantitative Analysis of Economic and Social Policy at the University of Toronto was subsequently modified for national application. The agency provided inputs to the model to simulate changes in population composition over time. One of the major new publications for 1974 was a series of official Population Projections for Canada and the Provinces, 1972-2001, by age and sex. The following year, a technical report would be published as well as population projections for households and families. Thereafter, similar projections would be published every five years. As part of the population estimates program in 1976/1977, an improved methodology using family allowance records was used to estimate interprovincial migration for the 1961-to-1976 period.



INTERNATIONAL WOMEN'S YEAR

The public service had established an Office of Equal Opportunity for Women in 1971, which coordinated equal-opportunity programs and emphasized that all public service careers were accessible to both women and men. In fact, in June 1972, the following slogan would appear on job advertisements issued by the Public Service Commission: "This competition is open to both men and women."

The year 1975 was International Women's Year, and federal departments and agencies were encouraged to propose ways in which they could contribute to the celebrations. Statistics Canada published an analytical study on the changing role of women in the Canadian economy, which was conducted by the CD Howe Research Institute under contract to Statistics Canada. The article was based on an analysis of data published by Statistics Canada.

Statistics Canada appointed a permanent Equal Opportunity for Women (EOW) committee, and a full-time EOW coordinator in the personnel division.

HUMAN ACTIVITY AND THE ENVIRONMENT IS BORN

An interdepartmental committee was established and directed by the Senior Advisor on Integration to plan and monitor the development of environmental data. In 1974/1975, the agency initiated a conceptual framework for environmental data, as well as a handbook on environmental data — which would be released in 1978/1979 as the first Human Activity and the Environment publication.

A general system of editing and imputation

The Statistical Services Field, created in 1973, supported data collection and compilation operations, including survey methodology, field survey work, and data processing. The merging of systems with methodology made it possible to move from an ad hoc approach to surveys toward more of a centralized approach with agency-wide standards, and fostered the development of more research capacity. For example, a general system of editing and automatic imputation of data based on a principle of minimal change developed by Dr. Fellegi and Dr. Holt was in development for the 1976 Census. It was originally called GEISHA (Generalized Edit and Imputation System using the Hot deck Approach) and later renamed CANEDIT, and used on many other surveys. Fellegi and Holt would publish a landmark paper "A Systemic Approach to Automatic Edit and Imputation" in 1976 in the *Journal of the American Statistical Association*. Before their ground-breaking work, there had been no unified theory of edit and imputation—ad hoc procedures were generally used. Their minimal change principle was used for many years in government statistical agencies around the world.

The Census Program

In 1973, the newly created Census Field was actively engaged in programs relating to three censuses: processing and publishing the results from 1971, planning for 1976, and long-range planning for 1981. The Census Field pioneered the use of project management in the new matrix organization of the agency. The Field was responsible for the censuses of population, housing and agriculture, as well as regular population estimates and projections, and conducted special surveys, such as the High-qualified Manpower Survey. This survey, based on a sample of university graduates identified by the 1971 Census, was undertaken for the Minister of State for Science and Technology. The Field was also home to the Census Pension Searches Unit, which regularly carried out proofs of age for pension purposes and proofs of birthplace for establishing citizenship. Established in 1973, the Census User Relations Group supported the agency's direction in becoming more responsive to the needs of its major clients. Its main function was to plan and maintain effective public relations programs with its users and to coordinate client requests.

Also in 1973, five years of research began paying dividends, when geocoding began to be used, with information sourced from the 1971 Census, including data on population, age, marital status, mother tongue, and housing. This was a system that enabled data production on pre-determined geographical areas of all sizes, including small customized areas. The geocoding system was offered as a statistical service to supply detailed data for user-specified areas. Furthermore, components of the system were available to organizations with the computer capacity to geocode their own data files.

Employee working with the Film Optical Sensing Device for Input to Computer (FOSDIC), 1971 Census



Wage and price controls

Chapter 1 introduced the commencement of stagflation in the early 1970s, denoting an economic situation where inflation was high and economic growth was slow. Inflation grew from about 3% in 1970 to over 12% just three years later. Many workers demanded wage increases. While some employers granted them, others did not, and workers often went on strike. In 1975, the government passed an *Anti-Inflation Act* and created an Anti-Inflation Board (AIB). The Board would monitor movements in prices and wages, and had the legal power to regulate the price / wage decisions of businesses. It sought to ensure wage growth was in line with targets of 8%, 6% and 4% over a 3-year period. It limited pay increases for federal public employees and those in companies with more than 500 employees. The Act was quite contentious as it was seen as government intrusion into the free market economy. The price and wage controls were enforced until 1978, and the Act was repealed in 1979. The AIB was not overly fond of the consumer price index (CPI) as a measure of inflation. In fact, its third-year report, in 1978, would state that "excessive reference to the total CPI is disturbing because this can only foster unjustified pessimism about future inflation rates in Canada at a time when most other indicators suggest that such views are unwarranted." Since the CPI was being used as a broad indicator of inflation and a bargaining tool in wage contracts, among other uses, it was also amended so that it would represent all families in urban centres of 30,000 or more, regardless of income or family size. As amended, the Act reflected overall consumer price change, rather than the price change experienced by a subset of households.



Interviewer collecting gasoline pump price for the Consumer Price Index, Edmonton, 1973

However, the CPI was not the only price index of the day. A number of new price indexes, including a number of construction price indexes were being developed in the late 1960s and throughout the 1970s. There were also wholesale and retail price indexes, export and import price indexes, and a system of industry-classified price indexes called the Industry Selling Price Indexes. It was a busy time for the Prices Division, as it seemed that, every year, more and more indexes were being developed or revised. The General Wholesale index was apparently in wide demand in the early 1970s, despite its 1935-to-1939 period and its weight base. In 1973/1974, examples of new indexes included an index of physicians' fees and an index of bus industries.

In June 1978, the Centre for the Study of Inflation and Productivity, which was known as "the son of the Anti-Inflation Board," was established as an agency of the Economic Council of Canada to analyze and monitor price and cost developments and conduct a comprehensive research program. It was also to monitor what was called the "CPI-2," that is, CPI excluding the highly volatile food items. It would be terminated less than a year later, in March 1979. It was replaced by the National Commission on Inflation, which was far less powerful than the AIB, but could require firms to provide information on wages, price and profit increases. Overall, while the controls likely reduced wage increases by a few percentage points, neither they nor monetary or fiscal policy were restrictive enough to maintain a lower rate of inflation.

The agency began publishing seasonally adjusted CPI on an annual basis in 1975 and then, as statistical software improved, on a monthly basis. The division would also complete a revision in 1978/1979, the eighth such revision in the history of the Canadian CPI, this particular one updating the consumer expenditure patterns from those of 1967 to those of 1974. The Prices Division was also conducting a feasibility study of producing a CPI for smaller centres, and was focused on Maritime cities including Charlottetown and Summerside. City CPIs were first published in 1974 (for years beginning in 1973) for Saskatoon, Regina, Edmonton and Calgary. By 1975/1976, the CPI was being expanded from 14 sample cities to approximately 50. In addition, the agency began calculating Canada-level indexes as a weighted average of the indexes for the urban centres. One important result of this was an increased timeliness—as by 1978/1979, the agency was able to release simultaneously both the national and city CPI estimates, effectively doing away with a previous 10-day lag between the two sets of data.

Inflation continued to rise rapidly, and a second oil shock occurred as world oil prices once again rose when the Iraq-Iran War broke out in 1979. The average annual CPI inflation would reach a high of 12.5% in 1981, and questions were beginning to surface about the validity of the CPI.

Don't shoot the messenger

The CPI was continually being questioned as a reliable measure of inflation. In 1978/1979, the officers of the Prices Division gave more than 25 seminars and public presentations across the country on the CPI and its revision to government officials, labour unions, and other interested parties. As the harbinger of news on the inflationary front, the Agency proactively undertook an extensive review, evaluation and analysis of the concepts and methodologies of price measurement in the fall of 1981, it's "Price Measurement Review Program." Three symposia were held to bring together Canadian and foreign experts to discuss aspects of price measurement and the inflation process. As well, national consultations on price measurement were held in early 1982 with business and academic communities, federal and provincial governments, and consumer groups. These provided a public forum for in-depth analyses of concepts and methodologies associated with the CPI and other measures of price change. The findings from the symposia and consultations also provided a basis for ongoing research on price measurement issues and future developments in the program. The findings were presented by specialists of national and international reputation at a two-and-a-half day public conference on price measurement in November 1982 in Ottawa. A Price Measurement Advisory Committee was established at the time of the conference, and began work in 1983 to review concepts, methods, and priorities of the agency's measures of price change. The committee continues to provide advice to the agency on price measurement to this day.

A NEW CHIEF STATISTICIAN IS APPOINTED

When Dr. Ostry was re-assigned in 1975 to the Department of Corporate and Consumer Affairs as Deputy Minister, she was succeeded by then-Assistant Chief Statistician of Economic Accounts and Integration Dr. Peter Kirkham. While two and half years was a short time period, it was not necessarily an anomaly to rotate deputy ministers after short time periods. It is also worth noting that Dr. Ostry was a high-flyer and that the government apparently wanted her expertise at the Department of Corporate and Consumer Affairs to assist with the legislative hurdles of amendments to Canada's new competition legislation.

Dr. Ostry had successfully shaken up the agency, she brought in "new blood" (which would become a slogan of the times and perhaps still is), and she ushered in an era of being more open with respect to communications between the Chief Statistician and her directors. It is worth noting that in probing for the reason for her relatively short stay, those who were close to her indicated that she was not overly fond of administration or management. It is also said that she may have dropped hints to the Clerk of the Privy Council at the time that she thought the Prime Minister had got hold of a very good initiative to see that Deputies were moved around. Ultimately, her talents were highlighted and perhaps better used in her position at the OECD, and particularly later on, as the Prime Minister's sherpa.

Dr. Kirkham did not take on the position of Chief Statistician at an easy time. The balance of Dr. Ostry's changes had not yet come to fruition, with the dust not quite yet settled after such a large organizational shift. In a mere 2.5 years, the agency had adopted a cost-recovery program, expanded its marketing and communications program, increased its outreach program, and brought in a wealth of new staff from the outside world.

The applecart overturns

Brewing morale and management problems at the agency spilled into the public sphere in 1975, when a 27-year veteran and senior executive of the agency distributed a rather scathing 18-page memo upon his retirement, criticizing the "disconnected management style" of senior management, placing much of the blame on Dr. Ostry and Dr. Kirkham. By 1976, criticisms progressively began to appear in the media and in the House of Commons, and from past and present staff members. Statistics Canada was accused of poor management, poor methodology and statistical standards, poor integrity, and poor sensitivity to user needs. The perception of the agency steadily deteriorated, and with the agency lacking a clear policy on media relations, these were difficult to navigate waters. At the time, the media relations approach was to sit tight and hope that the negative attention would soon pass. Public confidence was lacking and morale at the agency was at an all-time low.

One of the contributing factors to such a disconnected agency may have been that management had few means to gauge what employees were thinking or how they were faring. The annual employee performance review system required each supervisor to complete a detailed form describing duties and necessary abilities, and assessing their employees' performance against these. Supervisors were reluctant to "offend" their employees in case they launched formal grievances. The system was not well-liked.

In an interview with the staff newspaper, Dr. Kirkham spoke of the size of the agency as a contributing factor to the low morale. The agency had quadrupled in size since 1960, and it was hard to develop personal contacts in such a large organization spread out over 8 buildings. In fact, the agency had grown from 1700 people

and a budget of $7.4 million in 1960 to more than 5,700 people and a budget of $100 million in 1975. He also spoke of management issues such as the need for clearer goals and objectives, and the ongoing work to develop medium term plans. Dr. Kirkham noted that historically, when the agency was smaller, it was able to operate in the oral tradition, and each person was aware of the decisions taken and broad objectives of the agency. With technical and social changes, there was an explosion of demand for information, which instigated the growth and change of the Bureau. However, this growth happened without the managerial mechanisms and procedures required for the operation of a larger organization.

Public perception continued to decline in 1976 when it came to light that four employees were found to have breached conflict of interest guidelines by what was called "moonlighting" by operating a private company which had started consulting and customizing data for sale starting in 1971. Conflict of interest guidelines had been imposed by the government in 1973, requiring employees to disclose any interests that might conceivably be construed as being in actual or potential conflict with their duties. When Dr. Ostry was made aware of the employee activities in 1974, the RCMP had been called immediately to conduct a full investigation of the matter, including appearing early one morning to remove boxes of papers from an employee's house. They found that while the employees' conduct was not illegal as they had used only publicly available data, the situation comprised a conflict of interest and was professionally unethical.

The agency was also under fire for its hiring and promotion practices in connection with the conflict of interest guidelines, with eyebrows raised at its supposedly high number of married couples—these concerns garnered significant press although an audit by the Public Service Commission found no irregularities. The Minister responsible for Statistics Canada at the time the information became public was the Honourable Jean Chrétien, Minister of Industry, Trade and Commerce, who asked Dr. Kirkham



Peter G. Kirkham, Chief Statistician of Canada, 1975-1980

DR. PETER KIRKHAM

Dr. Peter Kirkham was a graduate of the Royal Military College of Canada, and served in the Armed Forces as an engineer from 1953 to 1961. He also had a degree in civil engineering from the University of British Columbia, Masters' degrees in economics and business administration from the University of Western Ontario, and a Doctorate in economics from Princeton University. Before joining the agency in 1973, he worked as an associate professor at the University of Western Ontario's School of Business Administration. He was Assistant Chief Statistician responsible for Economic Accounts and Integration before being appointed as Chief Statistician and served in that role from 1975 to 1980. After leaving the Agency in 1980, Dr. Kirkham was appointed Senior Vice President and Chief Economist of the Bank of Montréal. He retired in 1992, and currently lives in Kingston, Ontario.

to investigate all external contracts entered into by Statistics Canada employees. As a result of these incidents, Statistics Canada would go on to clarify and strengthen its conflict-of-interest rules in 1978.

Opposition parties and the media were active in criticizing the advance release practices of the agency, as well as the practice of census hiring. While work on a pre-release policy had begun under Duffett in 1971, a revised and strengthened policy statement was issued in 1974 to ensure new statistics were available to all users simultaneously in order to avoid any possibility of privilege. The policy also clearly laid out the conditions for pre-release of information. However, the practice of providing advance access to ministers was still widely criticized.

With respect to census hiring, the current *Statistics Act* permits the Minister to assist in the recruiting of field interviewers, including for the Labour Force Survey, the CPI, business surveys, and censuses. The process at the time was that, when the regional offices identified the need for new interviewers, they would contact head office who would contact the Minister's staff to determine whether any candidates would be recommended. When head office received a list from the Minister's office, they would relay the information to the regional office, which would contact, interview and test each person. This was obviously not an ideal situation, given the potential for political influence and preferential treatment. This practice was also widely criticized by opposition parties, who saw it as a way to distribute favours to party supporters. Today, while the Minister responsible for Statistics Canada retains this authority, it is not exercised.

ORGANIZATIONAL CHANGES

In the fall of 1976, the Departmental Secretariat was established and charged with co-ordinating the flow of correspondence to and from the Chief Statistician's office, including parliamentary returns. It was responsible for documenting issues, developing policy proposals to the Executive Committee, and ensuring action on the Executive Committee's decisions. It also provided research, administrative and staff support to the Chief Statistician.

Statistics Canada's Operational Audit Division was also first established in 1976, and was first staffed under contract by the Audit Services Bureau of Supply and Services Canada, with Statistics Canada personnel joining the division 18 months later. It carried out financial and operational audits, as well as efficiency reviews and special studies. In 1978/1979, a total of 22 audits were conducted.

Metrification

The agency was also in the midst of converting to the metric system, or "metrification." In May 1973, the staff newspaper (SCAN) included an article ominously entitled "The switch to metric measurement is coming and you will



Employee showing how much longer a meter is than a yard, 1973

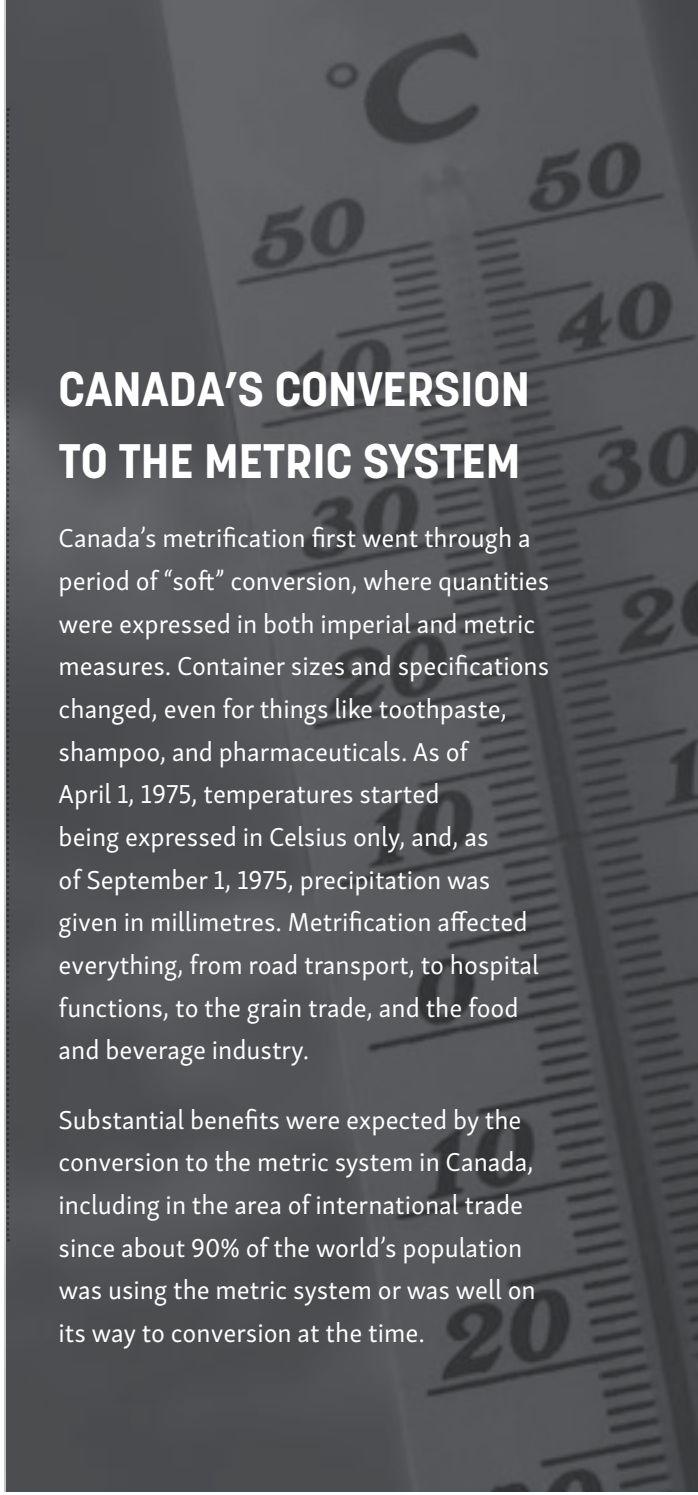
be affected." The federal government was implementing the recommendations of its white paper of 1970 on metric conversion in Canada. The SCAN article included a primer on conversions and covered some of the challenges facing the agency as it made the changes required to its systems and questionnaires. Preliminary work on the impact of metrification was carried out by the new Standards Division, established in 1973, whose responsibility it was to control classifications and concepts for the agency. Practical implementation of the metric system at the agency started in 1977/1978, the first stage being the conversion of publications to show quantities in metric, and the second being to provide a metric option in survey questionnaires for one year, before converting questionnaires to express only metric units.

Re-organization and decentralization

In 1977, the Census Field was combined with the Household Surveys Branch to create the Census and Household Surveys Field, and the Census of Agriculture Division and the Agriculture Division were moved to the Institutions and Agriculture Statistics Field. Financial Services were co-located with Planning Operations under a new Financial Services Division. In 1978, the Statistical Services Field was dismantled and decentralized, integrating methodology experts into the subject-matter structure, with the aim of improving responsiveness and collaboration. Some noses were a bit out of joint over the issue and, in hindsight, rightfully so, as one of the negative consequences was the cessation of research and development in the area of methodology. This deterioration would later be identified as a factor in the declining methodological stock at the agency.

Proposed relocation of the Ottawa Regional Office

The Ottawa Regional Office was planned to be relocated in 1978/1979 to North Bay, Ontario, in keeping with the government's decentralization policy of transferring departmental components from Ottawa to other regions in Canada. Regional office staff were given the option of transferring to North Bay or being considered for priority appointments at Statistics Canada in Ottawa or in other government departments in the Ottawa area. The office would be officially opened about half an hour west of North Bay, in Sturgeon Falls, Ontario, in 1983.



CANADA'S CONVERSION TO THE METRIC SYSTEM

Canada's metrification first went through a period of "soft" conversion, where quantities were expressed in both imperial and metric measures. Container sizes and specifications changed, even for things like toothpaste, shampoo, and pharmaceuticals. As of April 1, 1975, temperatures started being expressed in Celsius only, and, as of September 1, 1975, precipitation was given in millimetres. Metrification affected everything, from road transport, to hospital functions, to the grain trade, and the food and beverage industry.

Substantial benefits were expected by the conversion to the metric system in Canada, including in the area of international trade since about 90% of the world's population was using the metric system or was well on its way to conversion at the time.

THE PROTECTION OF PERSONAL INFORMATION

As computers were emerging as ubiquitous and powerful tools in the late 1960s and early 1970s, concerns were growing about the protection of personal information. In response to a federal government task force on privacy and computers, the *Canadian Human Rights Act*, enacted in 1977, included data protection provisions to address the proliferation of individual information banks. It gave individuals a right of access to personal information held about them in federal information banks. A provision of the Act required the annual publication of an index of each federal information bank of administrative records, listing the contents and uses of the data. The Act included a role for Statistics Canada in the co-ordinated review of existing government information banks. The Federal Statistical Activities Secretariat, established in 1978 at Statistics Canada, took on the information bank coordination role. This was a new unit at the agency, formed under the Chief Statistician, which combined the Rule of Ten Staff from Special Surveys Co-ordination Division and the Clearinghouse Staff from the Standards Division. The Secretariat would provide a focal point for dealing with the broad, cross-cutting issues that affect all federal government participants in the statistical system. Its staff would act as the review staff on behalf of the Treasury Board Secretariat in reviewing statistical information bank proposals, developing documentation on information files held by federal banks and other government departments, and creating and maintaining data clearinghouses and inventories. In 1978, the Secretariat was participating in developing a master plan for the federal statistical system.



Enumerator for the 1971 Census of Agriculture

NOTABLE MILESTONES IN THE STATISTICAL PROGRAM

The agency continued to make progress with administrative data, including in the agricultural domain. As of January 1976, farm production of milk was generated from data supplied by provincial milk marketing boards, and estimates of laying birds in poultry flocks were produced from information on the number of layers in flocks registered with the Canadian Egg Marketing Agency, in hatchery supply flocks inspected by Agriculture Canada, and in unregulated flocks derived from the surveys. In 1977/1978, a data analysis function was created within the division, which placed greater emphasis on the creation of analytical databases, including a linked agriculture-census database.

A new airport survey was initiated in 1976/1977, which covered in detail all scheduled domestic and international flights operating in Canada. In fact, Canada's airport security tax, yielding $4 million in revenue per year, was levied on the basis of the number of passengers carried as measured in the survey. The survey covered 50 major airports, and results were published quarterly and annually. There was also an interdepartmental task force, including customs officers and officials of the office of tourism, who met regularly throughout 1976/1977 to explore alternative low-cost methods of improving international travel survey response rates and reliability.



Enumerator for the 1971 Census of Agriculture

A DATA ANALYSIS FUNCTION WAS CREATED, WHICH PLACED GREATER EMPHASIS ON THE CREATION OF ANALYTICAL DATABASES, INCLUDING A LINKED AGRICULTURE-CENSUS DATABASE

In the area of justice, a gun user / owner survey sponsored by the Ministry of the Solicitor General was carried out in 1976/1977 as a supplement to the Labour Force Survey, with results to be used to plan gun control legislation. This was also the year of a special study on juvenile delinquents transferred to adult courts as well as a national sample survey on juveniles in conflict with the law, which were completed to assist the Ministry of the Solicitor General to plan new juvenile-delinquency legislation.
In April 1978, a National Work Group on Justice Information and Statistics was set up. This work group was jointly funded by Statistics Canada, the Ministry of the Solicitor General, and the Department of Justice. In its first year, the National Work Group completed a comprehensive study of federal and provincial justice information systems and approved a federal-provincial work plan.

In 1976/1977, CANSIM could provide data in the form of printouts or in machine-readable form via a nation-wide telephone network provided by 12 secondary distributors.
A cross-sectional capability was introduced to CANSIM to enable the inclusion of social data. Data from the Health and Justice divisions were the first to be entered into this new base. By 1979, a new CANSIM division had been introduced within the Marketing Services Field in an effort to bring together dissemination functions. Publications distribution and selected census staff were also transferred to the Field's User Advisory Services Division.

The Field Division, responsible for field collection, operated the eight regional offices and was heavily involved in the 1975 parallel

PROFESSIONALISM AT WORK

Amidst the scandals, which primed the press for quick reaction to anything related to Statistics Canada, the agency continued its emphasis on quality control. In 1976, then-Director General of Current National Accounts Stewart Wells became worried that the labour income and consumer expenditure data feeding the national accounts were deficient, as new retail trade surveys exposed some inaccuracies in historical data on retail trade, which had resulted in consumer expenditure being underreported. Thus, sharp upward revisions to the gross national product (GNP) estimates for the years from 1971 to 1974 were necessary. At the same time, the Labour Division discovered discrepancies between its calculation of labour income, and the "control total" from tax data, which had resulted from some new businesses slipping through the cracks when responsibility for reporting new businesses to the agency was transferred in 1972 from the Unemployment Insurance Commission to National Revenue. As a result, labour income was also underreported in the GNP. Stewart Wells speculated in a memo to his Assistant Chief Statistician at the time (Guy Leclerc) that these large upward revisions would carry through to other economic indicators. This memo was leaked to the press, and another uproar ensued in Parliament, which was relatively quickly assuaged by Minister Chrétien, who supplied a technical memo explaining the process of the GNP, assuring the House that the agency was streamlining the Retail Trade Survey and was engaged in negotiations with National Revenue to improve reporting. In essence, what was happening was largely the result of the advent of new technology. Computerization was allowing the confrontation and validation of data from various sources at the micro-level, and this revealed substantial inconsistencies.

run of the current and revised Labour Force Survey. The Field Division was also finishing up a very large special survey during which it interviewed 75,000 households in 23 cities over a 2-month period. This was the Survey of Housing Units conducted for the Central Mortgage and Housing Corporation (CMHC), one of the largest surveys managed by the Special Surveys Coordination Division at the time. The pilot had been carried out in Toronto and Hull, after which the sponsor requested additional information on room dimensions. A "mini-pilot" followed, for the purpose of assessing possible methods for obtaining this information. The best method was found to be simply to leave a tape measure with each respondent and to call back a couple of days later!

The year 1976 also marked the implementation of a culture statistics program at the agency, which was arranged with the Secretary of State. In 1978/1979, the program was expanded to include the recording industry and painters and sculptors, and government expenditures on culture.

A major project in 1976/1977 was to redesign the establishment-based employment and payrolls program. An interdepartmental committee completed a review and made recommendations on content. The next year, the frequency of data collection was discussed with the provinces. The proposed new survey was to include information from both administrative and survey sources, and its feasibility would be tested over a two-year time period. The revised system of surveys was expected to become operational in 1981.

The Job Vacancy Survey, which was essentially a parallel of the Labour Force Survey, albeit on the demand side of the labour market, was also undergoing a comprehensive review involving its main users, which included the federal department of Manpower and Immigration, and the provincial governments. This was a mail survey addressed to some 90,000 reporting firms or subdivisions each month. Although the review was slated for completion by the end of 1979, it was, in fact, terminated as part of the budget reductions.

A major review of health statistics was initiated in 1977/1978 by the Conference of Deputy Ministers of Health, resulting in the establishment of an ad hoc committee on health information to review and recommend modifications to the health information systems. They concentrated on three subgroups: hospitals, other institutions, and primary care. By 1978/1979, the Health Statistics program had changed substantially, largely as a result of budget cuts. The division created a research and analysis section to further analytical work and assumed responsibility for analysis of social security statistics.



Interviewer for the Labour Force Survey, Vancouver, 1972

The 1976 Census Program

The 1976 Census of Population was conducted on June 1, 1976, and included new questions on education and labour-force participation, although as a mid-decade census, it had fewer questions than the decennial censuses. It would be the last mid-decade census to be a "mini-census," as subsequent censuses would remain relatively the same size. The sampling ratio for the long-form census remained at one-to-three, although the following census in 1981 would see a reversion to one-to-five. The field division operated 8 regional census



THE CANADA HEALTH SURVEY

The physical measurements component of the new, but short-lived, Canada Health Survey was tested with 260 households in Peterborough, Ontario, in 1976 as a prelude to the 1978 survey launch. A Statistics Canada interviewer and a Health and Welfare nurse measured height, weight, skinfold, blood pressure, pulse rate (after stepping up and down a set of stairs for three minutes), and a blood test to verify immunization levels to certain diseases, cholesterol, and traces of some metals. The interviewing teams carried a set of portable stairs and three suitcases full of equipment to each household over a period of three weeks. The survey was a joint undertaking of Statistics Canada and the Department of National Health and Welfare, and collected data on the health of Canadians and on self-imposed health risks.

offices, with approximately 35,000 temporary employees, to carry out data collection and processing. By the late 1970s, the Census Field had grown very rapidly, and some felt that it was increasingly self-contained, with its own dissemination capabilities, as well as its own subject-matter people in areas of overlap with the social statistics program. It would eventually be re-integrated with the general operations of the agency in the new Census and Household Surveys Field.

In 1979, the staff of the Census Data Dissemination Division was merged with the User Advisory Staff of the Marketing Services Field to provide one central point of contact for data users. The Census Library, which was a branch library that had served census personnel in a different location, was also closed, with its collection and the census librarian integrated into the main library.

The international scene

The year 1976 saw the creation of an International Relations Division to consolidate the agency's ongoing international statistical involvement, which included the supply of Canadian data to international organizations as well as participation in the development of international statistical standards and future work programs. The agency also continued its bilateral co-operative work with the statistical agencies of individual countries. In 1974, Canada had formally become a member of the Conference of European Statisticians, a subsidiary body of the United Nations Economic Commission for Europe, although Statistics Canada had been participating informally in its work since the mid-1960s. Throughout the years, the agency has played a role as a data provider and contributed to improving the quality and comparability of statistics internationally.

Fiscal restraint across the government

If the early 1970s were difficult for the agency, the late 1970s were even more unsettling. The years 1977 and 1978 witnessed significant budget cutbacks, with the only guidance provided to "preserve critical national economic series." It was, in fact, a time of fiscal restraint all across government. One of the great dichotomies of a statistical office is that, as governments seek to be more efficient by thorough deliberation and measurement of program results, they require more and novel information. However, the national statistical organization is equally affected by such fiscal restraint, and therefore must seek ways to meet new and greater demands with fewer resources.

As a result of the budget cuts, the agency's budget was reduced by $16.4 million, and 825 positions were eliminated. The cumulative decrease in human resources since 1974/1975 was approximately 1,200 people, or more than 20% of the workforce. The Statistics Canada publication *The Daily*, in its November 2, 1978, edition, published a list of 95 publications scheduled for cancellation before the end of the 1978/1979 fiscal year and a further 28 to be modified or otherwise curtailed, many in the areas of agriculture, manufacturing, energy, education, and health. Some of the casualties of the budget cuts included the Occupational Employment and Job Vacancy surveys as well as the new Canada Health S urvey, initiated to assess the health of Canadians by using interviewers to collect health data and paramedics to do clinical examinations. To help address budget reductions, the *Canada Year Book*, the *Canada Handbook*, and *Statistics on Culture in Canada* became biennial instead of annual publications, and there were significant increases in the prices of the agency's publications.

By placing an embargo on external recruitment and mounting an effort to fill vacant positions with surplus employees, combined with normal attrition and some accelerated retirement, only 59 employees were laid off after March 31, 1979. In fact, there was a reassignment team in human resources focused on helping every affected employee find another job. The team even published an article in the staff newspaper asking for the help of employees in the chance that any of their contacts in the private sector were looking for professional or clerical employees.

At the time, there was still little movement between the different areas of Statistics Canada. As a result, one became an expert in a particular area, with little opportunity to expand one's skills, undertake new projects, or most importantly, understand the challenges that others faced. Not only was the Agency relatively insulated from the outside world, but also the divisions within the agency were also insular unto themselves. In fact, employees moving from one division to another to advance their careers tended to be seen as disloyal, not just by their colleagues but also by senior managers. It is thus understandable that in times of austerity, employees felt exceptionally vulnerable, feeling that they might lose their jobs if their particular program areas were affected by the budget cuts.

In planning for a permanently constrained budget situation, in 1978 the agency produced a planning document entitled "Statistics Canada – the Medium Term," which was made publicly available. Recall that medium-term plans had been recommended by Ostry's task force in the early 1970s. This was in essence, the first formal strategic plan set out by the agency, containing four major thrusts: improved service to users, reduction of response burden, enhanced efficiency, and statistical leadership and coordination. In terms of leadership and coordination, much of the production work that did not need to be carried out by a central statistical agency would be devolved to other parts of the system. For example, there had been indications from industry organizations and other groups affected by the program cuts that expressed willingness to either continue the surveys themselves or fund the agency to carry out the work on their behalf. The development of the Medium Term plan was coordinated by the Policy, Planning and Evaluation Branch. It turns out that, while medium-term plans were likely helpful in organizing thoughts, they were not geared to actual results in the long run, as they generally lacked mechanisms to enable their execution.

THERE WERE WHISPERINGS OF A MAJOR ORGANIZATIONAL UPHEAVAL

A NEGATIVE ATMOSPHERE

The ongoing negative media onslaught, the criticisms in the house, the budget cuts, and the perspective that the agency was not serving the needs of its clients—everything led to a relatively poisonous environment at the agency. Criticism of issues deteriorated to criticism of people. There were also whisperings of a major organizational upheaval, with an idea of splitting the organization into two halves, the social statistics and the economic statistics as two almost completely separate units. Interpersonal tension grew, and the era was described as one of "internal warfare." In fact, as a result of the negative atmosphere, the situation became untenable to many people, and many left the agency. In June of 1978, Dr. Fellegi took a leave of absence for one year to participate in a task force reviewing the American Federal Statistical System. It was only when Dr. Kirkham asked him to return to take charge of the 1981 Census that he felt a moral obligation to return. Dr. Fellegi would later receive a certificate of appreciation from U.S. President Jimmy Carter for the work he did on the "President's Reorganization Project." Gordon Brackstone (later to become Assistant Chief Statistician) left the agency to work for the British Columbia statistical agency, as did Jacob Ryten (also later to become Assistant Chief Statistician), who left to work for the United Nations, leading a project in Ecuador. All three of these individuals would later return to the agency to take on senior positions.



Peter Kirkham participating in an activity organized for the United Way campaign, 1979



A FULL AND CONSTRUCTIVE REVIEW

In 1979, the agency was again accused of "cooking" numbers on labour income and spending money on supposedly "futile" projects. This came about through a leakage of another internal memo, written by a manager who refused to be interviewed for the division's directorship, believing that two equally qualified colleagues had been passed over for the opportunity. His memo to Dr. Kirkham devolved into a lengthy criticism of the agency and its leadership. Later that year, the agency was also accused of postponing the release of revised merchandise trade data to avoid coinciding with the May 1979 general election, which the press insisted was to assist the Liberal government.

In June 1979, when the Progressive Conservative Party was elected to government, the Honourable Sinclair Stevens, Statistics Canada's most persistent critic in the House under the previous Liberal government, was given responsibility for the agency. In December 1979, Minister Stevens commissioned a number of inquiries into the operations of Statistics Canada. He stated at the time that many of the alleged problems appeared to be concerned with human relationships and attitudes and not with methodology, but that "a full and constructive review is necessary at this time to ensure that users can continue to have the faith and confidence in the agency's products that are critical to so many programmes and decisions throughout Canada." He announced that there would be a management and communications review by Price Waterhouse, a professional review of the methodology used in the production of certain key statistical series directed by Sir Claus Moser, and an inquiry into the allegations of malfeasance (that the agency was "cooking numbers" and "wasting money on useless projects") by Ottawa lawyer Peter Newcombe.

The Price Waterhouse study conducted 120 interviews, including with managers at the agency, union representatives, central agency officials, economic forecasters and other major data users in the public and private sectors. It also reviewed a number of other internal studies, policies and procedures manuals, press clippings, publications, and special briefs. The study concluded that the agency faced serious problems in both internal management and external communications, and made a number of recommendations to bring back employee morale and restore public respect. One important recommendation was the establishment of a National Statistics Council, with a model proposed similar to that of the Economic Council of Canada. It would take a number of years before this recommendation saw any traction.

The Moser review came about because Dr. Fellegi suggested to Dr. Kirkham that an additional professional review should be conducted, in light of the fact that public criticism also targeted the professional reputation of the agency. He also recommended the members of the review team. Sir Claus was an extremely well-respected former director of the Government Statistical Service of the United Kingdom. He was assisted by a team of experts in national accounts, in the CPI, labour statistics, and quality assurance from the United States. Sir Claus was asked to complete his study within two months, and the report was published by March 1980. The Moser team met with members of the agency, with ministers and officials outside the agency, and with major data users, and examined documentation, communications, and media articles. The Minister responsible for Statistics Canada at the time, Minister Johnston, summarized that the Moser group "found no evidence of lack of integrity or impartiality; were impressed, overall, with the high quality of data produced by Statistics Canada; and found most of the public criticisms concerning methodology to be ill-founded or exaggerated." While the Moser study found some deficiencies

and developmental needs, these were not out of proportion with those in other national statistical agencies around the world. In fact, most concerning at the time was what Sir Claus called a decline in the "methodological stock" of the agency, including the departure of key personnel, the "disbanding of a central concern for methodology," and the erosion of the role of the national accounts as an instrument in the integration of economic data.

Moreover, the report referred to the use of the agency as a "political football" and indicated that the agency should be able to count on greater ministerial support and a more encouraging government and public context. This aligned with a recommendation in the Price Waterhouse study that the agency ought to be more forceful in relations with the media and Parliament. It indicated that the underlying policy of the agency had been to shrink away from criticism, hoping that the onslaught would pass. However, this "sitting duck" posture likely encouraged more than dissuaded critics. Criticism encouraged other criticism, and in the absence of an effective response, harmed employee morale. They recommended that unfounded criticism be rebutted, and that the measures taken to resolve any problems be made known. Sir Claus's report also recommended the creation of a National Statistics Council, but with a slightly different role than suggested by the Price Waterhouse report—his report recommended that such a council not set priorities, indicating that such a task belonged to the agency, but to give the user communities a voice, to give the agency the opportunity to discuss issues with a high-level group of people interested in statistics, and to provide a protective forum. They agreed with the Price Waterhouse report that a task force should study the question and make proposals for a National Statistics Council.



The inaugural members of the National Statistics Council, 1986

Solicitor Peter Newcombe was appointed by the Government under the *Inquiries Act* to investigate complaints alleging illegal conduct or negligence by agency officials. Newcombe similarly was given two months to report. He published advertisements in Ottawa newspapers asking interested parties with complaints to submit their evidence in writing and held private hearings. His inquiry turned up no evidence of improper or illegal conduct or negligence by the agency or its employees, although the report was not made public as it contained personal references.



STATISTICS CANADA EMPLOYEES GATHERED TO BID FAREWELL TO DEPARTING CHIEF STATISTICIAN OF CANADA PETER KIRKHAM

DR. KIRKHAM DEPARTS

Dr. Kirkham announced his resignation from the agency in early 1980 to become Senior Vice President and Chief Economist of the Bank of Montréal on April 1. Larry Fry, Deputy Minister of Supply and Services was given the additional interim duties of Chief Statistician starting in April 1980 until such time that the position could be filled on a full-time basis. He remained Deputy Minister of Supply and Services, and came to the agency a few times a week. Larry Fry also served on the search committee charged with finding the next Chief Statistician. During his short tenure, from April to December 1980, he began to oversee the implementation of many of the recommendations of the external consultants. He also secured the services of a professional consulting firm to survey staff on various subjects of concern such as internal communications, supervisory and work planning practices, as a means of ascertaining areas for improvement and corrective action. He set up a system to improve internal communications, and encouraged employees to address suggestions and complaints directly to him in confidence.

In the fall of 1980, a new management accountability policy would be implemented at the agency, as a result of a task force to Improve Management Practices and Controls (IMPAC). The IMPAC task force was working on the recommendations contained in a study of Statistics Canada made by the office of the Comptroller General, and set out to develop policies, guidelines and instructions on strategic planning, operational planning and control, financial and management information systems, internal audit, evaluation and management training. Recommendations of the Price Waterhouse Associates study relating to those areas were also under the purview of the task force. The management accountability policy set out that every employee should be accountable to a clearly identified individual for each of their duties and responsibilities. It also included a process to set objectives and goals and assign responsibilities, and to report progress and review results. In addition, contractual agreements were to be used between divisions with interlocking responsibilities on projects – specifying quantities, qualities, costs, and delivery schedules.

THE END OF AN ERA

The 1970s had come to an end, an era which has been described as one of "survival." In a sense, it was as perfect storm of drastically changing technology, unprecedented budget cuts, organizational instability and a diminishing focus on research and development, with resulting bad press and poor morale. In fact, if one was to hint to anyone in the late 1970s that within two decades, the agency would be recognized as one of the best statistical agencies in the world, they most certainly would not have believed it.

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CHAPTER 3

A pivot point: 1980 to 1985

THE CHALLENGING SEARCH FOR A NEW CHIEF STATISTICIAN

By 1980, the situation at the agency had become nearly untenable. Morale and professional pride among employees were exceptionally low, and public confidence in the integrity and competence of the agency were badly eroded. A number of factors had led to the decline, including having had four chief statisticians in under 10 years; a number of significant reorganizations; criticisms of the agency in the House of Commons and in the media; three external investigations; a number of personnel and efficiency audits; growing isolation from other federal departments; budgetary decreases of about one-fifth; and, also perhaps a factor, the public attention afforded to "fixing things" by bringing in a new Chief Statistician from the outside world, recruited by outside agents.

An article in the *Ottawa Citizen* in August 1980 outlined the challenges encountered in the search for a new Chief Statistician and was rife with speculation and rumour about who might be chosen. The search committee was looking for an experienced statistician, widely respected in the professional community and with vast managerial experience. Ultimately, Dr. Martin Wilk was identified as the prime candidate for the next Chief Statistician of Canada. He had three things going for him: he was Canadian, he had written extensively on statistics, and he was about to retire from his current position at American Telephone and Telegraph Company (AT&T).

Dr. Wilk had been identified by the Executive Recruitment Committee, but first he had to be convinced to leave his executive position at AT&T, move to Canada, and head up a struggling organization. He was initially approached in May 1980 by a headhunting firm based in Toronto that had been contracted by the federal government, although, oddly enough, the recruiter was not explicit about the reason for contacting him. Since Dr. Wilk had been provided with the recently completed Moser and Price Waterhouse reports on the agency, he naturally assumed he was being asked to share his impressions since it was routine procedure for senior managers at AT&T to be approached for such counsel.

Dr. Wilk was invited to come to Ottawa for a meeting, which he did, obviously intrigued by this curious and unexpected invitation. He met with the members of the review committee, including the Secretary of the Treasury Board Jack Manion, Comptroller General of Canada Harry Rogers, Deputy Secretary to the Cabinet



Employee at the security desk, Main building, circa 1980

Fred Drummie and interim Chief Statistician Larry Fry. The review committee members provided brief summaries of the reports, and, meanwhile, Dr. Wilk was poised to give his reaction to the reports. Instead, Mr. Manion unexpectedly asked Dr. Wilk how he would handle the situation and why he felt he could do the job! A bit taken aback, Dr. Wilk responded that he had come to give his feedback on the reports, and that he would prefer to adhere to what he had prepared to do. Apparently Mr. Manion was a bit surprised, but he went along with Dr. Wilk's request. After this initial meeting, Dr. Wilk indicated that he wasn't interested in the position and returned home to New Jersey. He later explained his initial reaction to the *Financial Times* in an interview in the spring of 1981: "I really didn't have any significant background in political or public life or any interest in it and really don't have background relating to national statistical systems."

In the meantime, it was quickly becoming evident to the search panel that Dr. Wilk was in a league of his own and that they again had to try to convince him to take the position. He was invited once more to Ottawa, this time by the Clerk of the Privy Council and Secretary to the Cabinet, Michael Pitfield. Dr. Wilk was approached with a challenge — one that, of course, would be *impossible* to expect an outsider to carry off. He was also told at one point that this was the last chance for a centralized statistical agency, and if he couldn't manage to pull the agency's socks up, the national statistical system would be decentralized. The deliberations went on for a few more months, ending with Dr. Wilk finally agreeing in September to return to Canada to take on the job. Dr. Wilk was appointed Chief Statistician of Canada on December 1, 1980.

Dr. Wilk had no small task ahead of him. He needed to improve staff morale and public perception of the agency and demonstrate the value of Canada's national statistical office. He also fully recognized that, given recent history, he would be seen as someone who had been parachuted in from outside the agency.

Not everyone was initially comfortable with Dr. Wilk's rather direct and confrontational approach. Although he was highly skilled, many of his executive team found the Wilk years to be stressful and unpleasant because of his management style. He was to exact an immense cultural shift at the agency by instilling standards and enforcing purpose-driven decision making. When projects succeeded, there was a tremendous sense of pride, which had been lacking so long among Statistics Canada employees that some of them didn't even want to admit they worked at the agency.



Martin B. Wilk welcoming new Statistics Canada employees, 1981

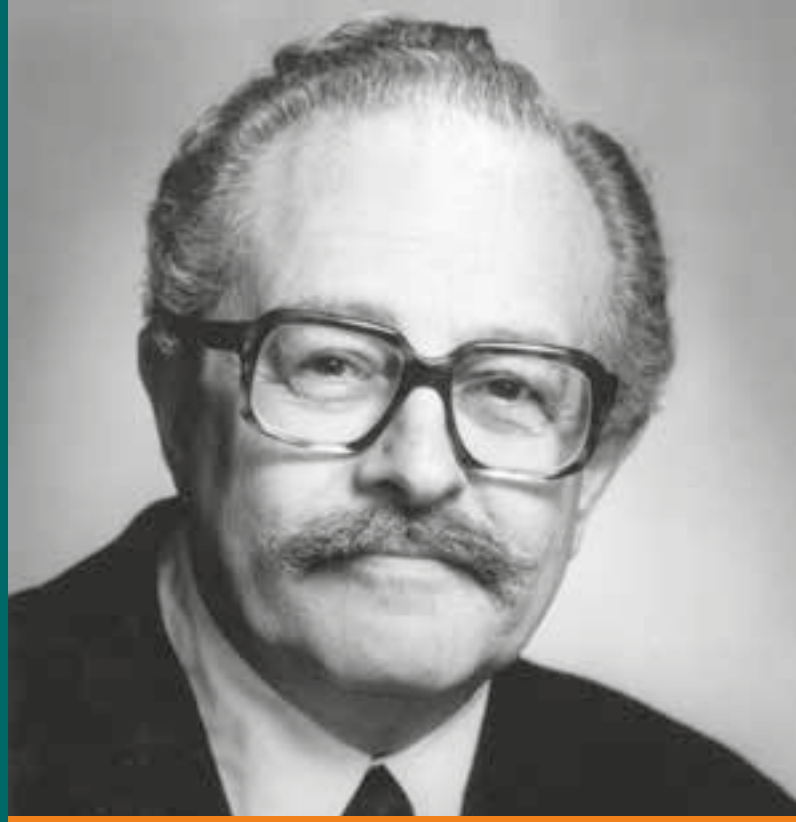
Dr. Wilk's tenure at Statistics Canada would come to be seen by many as a pivotal point for the agency—the force that began to alter its course and propel it into a more positive era.

DR. MARTIN WILK

Dr. Wilk was born in 1922 in Montréal. He had a chemical engineering degree from McGill University, and an MSc and a PhD in statistics from Iowa State University. He was a research chemical engineer at the Atomic Energy Project of the National Research Council from 1945 to 1950 before moving to New Jersey to become Research Associate and Assistant Director of the Statistical Techniques Research Group at Princeton University. He then held a number of positions at Bell Telephone Laboratories, starting with being a member of the technical staff to becoming the Statistical Director of Management Sciences Research. He was also a professor of statistics and Director of Research in Statistics at Rutgers University. In 1970, he moved into management at American Telephone and Telegraph Company (AT&T), the parent company of Bell Laboratories, culminating as Assistant Vice President and Director of Corporate Planning.
Dr. Wilk was Chief Statistician of Canada from 1980 to 1985, the first mathematical statistician to hold the position. During Dr. Wilk's tenure as Chief Statistician, Statistics Canada identified strategic thrusts to meet the growing needs of its data users in the 1980s. In addition to sustaining the development of the core programs of social, economic, institutional and environmental statistics, a stronger emphasis was placed on marketing activities and information services, regionalization, research and development, and analysis.

Dr. Wilk served as Vice President of the American Statistical Association from 1980 to 1982.
He was President of the Statistical Society of Canada from 1986 to 1987, and was made an honorary member of the Society in 1988 "... for seminal contributions to the fields of analysis of variance, multivariate analysis, model fitting and validation, for enormous contributions to Statistics Canada as the Chief Statistician and for insightful guidance of the Society while serving on its Board and as its President." He was an elected member of the International Statistical Institute, the recipient of the 1972 Jack Youden Prize, and a fellow of the American Statistical Association, the Institute of Mathematical Statistics, the Royal Statistical Society, the American Association for the Advancement of Science, and the New York Academy of Sciences.

After Dr. Wilk retired from Statistics Canada, he served for 22 years on the National Statistics Council, as well as on the Advisory Committee on Science Statistics and the Advisory Committee on Statistical Methods. He also undertook several important consultancies for the Canadian government. Dr. Wilk was appointed Officer of the Order of Canada in 1999 for his "insightful guidance on important matters related to our country's national statistical system." He passed away in 2013 at the age of 90.



Martin B. Wilk,
Chief Statistician of Canada, 1980-1985

MARTIN WILK PLACED A STRONGER EMPHASIS ON MARKETING ACTIVITIES AND INFORMATION SERVICES, REGIONALIZATION, RESEARCH AND DEVELOPMENT, AND ANALYSIS

MORALE IMPROVES

Throughout the early 1980s, morale at the agency improved as a result of many deliberate and direct initiatives, as well as indirectly through other positive changes in the work and working life of employees. At an early stage, Dr. Wilk realized that he could not afford to neglect morale. He believed that good morale occurred when people felt they were doing useful and interesting jobs in a comfortable environment, and that, as such, staff needed to be assured of continuing career and professional development and job satisfaction. He was not at ease until he could find a mechanism to achieve this outcome—a trait that many senior managers learned from him.

Dr. Wilk also knew that there was not one all-encompassing measure that could help boost the morale of employees and their pride in their work, but that the agency should instead embrace a series of small initiatives to sustain morale over the long term.

The Corporate Assignments Division, an important legacy stemming from those years, was therefore established to act as a broker between areas of the agency that needed help and employees who wished to broaden their experiences. On the project side, new energy and ideas were fostered and short-term task requirements could be easily addressed. On the employee side, the impact on employee morale was significant and lasting. It fostered a feeling of belonging to the organization (and not just their particular area), and sent a message to employees that their career development and job satisfaction were important. The great success of the program resulted in its implementation in other government departments. Dr. Wilk himself was even featured in a promotional advertisement used across departments.

One of the more direct morale-targeting initiatives was a "contact" program, established in early 1981 to allow employees to anonymously contact management with suggestions, opinions, concerns or questions. Written responses were sent to employees' homes to ensure confidentiality (before the creation of email!). Requests sent to the program dropped from 44 in its first month of operation to 1 or 2 per month a year later. A new employee assistance program, staffed by two full-time nurses trained in employee counselling, was also implemented to provide professional counselling services in a variety of fields to all employees.

Another important influence on the improved morale at the agency was the generous attention afforded to it by its new Minister, the Honourable Jean-Jacques Blais, Minister of Supply and Services and Receiver General for Canada under the government of Prime



Advertisement of Martin B. Wilk to promote the corporate assignments, 1983



Employees from the new Employee Assistance Program, 1986

Minister Pierre Trudeau. Minister Blais also held the title "Minister Responsible for Statistics Canada," and requested an office at the agency—the only Minister responsible for Statistics Canada to ever do so. In fact, his father, Rudolphe Blais, had recently retired from Statistics Canada, having worked on the 1971 Census and in the Official Languages Division.

Minister Blais was from Sturgeon Falls and represented the riding of Nipissing in the House of Commons from 1972 to 1984. He officially opened Statistics Canada's Sturgeon Falls office in July 1983. Minister Blais was extremely involved with the agency, evidenced by his continued involvement in both its large projects and its day-to-day affairs. For example, in 1980, he visited the Vancouver regional office to present a certificate to Pricing Survey Project supervisor Don Kembel, who was retiring with 38 years of service. In the summer of 1981 at a gathering of census employees in the Jean Talon building, the Minister congratulated them on their professionalism and success in carrying out the 1981 Census. He also supported and contributed to the Public Communications Program at the time, personally attending 22 functions across the country to promote the importance of the census. In May 1982, when Dr. Wilk's administrative assistant, Jacqueline Poullet, was honoured for having saved the life of a young boy who had fallen into the Ottawa river, Minister Blais was on hand to present her with an award (she also later received the Medal of Bravery from the Governor General). He and the Minister of Agriculture at the time, Minister Whelan, attended a news conference announcing the results of the 1981 Census of Agriculture in June 1982, and, in November, he attended the first long-service awards ceremony for agency employees.

In a videotaped Christmas message to regional offices, Dr. Wilk praised Minister Blais' positive influence on the agency: "He has shown sensitivity and respect for the apolitical traditions and scientific objectivity that must characterize Statistics Canada. I have been able to pursue my responsibilities secure in the knowledge that Mr. Blais would never ask nor permit the Bureau to alter its stance as an impartial reporter of the nation's social and economic characteristics. His support has given all of us at Statistics Canada the freedom and the encouragement to strike out in new directions, pursue new methods and new programs and generally attempt to improve on what has gone before."

By 1984, the annual turnover rate for continuing employees had almost halved in four years, decreasing from 11% to around 6%. This was also 3% lower than the public service average at the time. Grievances dropped from about 100 to about 30 per year.

ORGANIZATIONAL CHANGES

A new focus on integration

While there was some reorganization in the early 1980s, the structure of the Bureau did not immediately undergo a major shift comparable to what it experienced in the 1970s. Dr. Wilk believed that having the right people in the right positions was vastly more important than any given organizational structure. In fact, he cautioned against solving institutional problems by relying on paper-based reorganization schemes, given that they challenged both stability and loyalties. Instead, he continually emphasized that the agency's strength and most important resource were its employees. The tradition of recognizing an "Employee of the Year" for significant contributions to the work of the agency began under his tenure in 1984, a practice that continues to this day.

Dr. Wilk praised the ongoing work of the agency in a May 1982 interview with Ottawa Citizen reporter Dan Bailey: "The vast bulk of our resources and what we do are associated with programs that have been in place subject to evolution over many years, and in some cases over decades. That's where most of the credit, that's where most of the pride, that's where most of the resources, that's where most of the accomplishments really lie. Yes, we are evolving our prices program but the vast bulk of the prices program is the collection of prices. Yes, we're evolving our Labour Force Survey but the vast bulk of the work and accomplishment there is in the regular determination on a monthly basis of employment and unemployment in Canadian households. It was certainly true that ten years ago internationally, Statistics Canada was regarded as the pre-eminent statistical organization in the world. It is true that its reputation has been damaged or apparently eroded somewhat over the past ten years but my point is that the accomplishments that led to such a reputation are largely still in place…"

The minimal restructuring that did take place at the agency in Dr. Wilk's early years as Chief Statistician was aimed at balancing responsibilities and encouraging communication by establishing interdependencies. The notion of establishing interdependencies was something that Dr. Goldberg had abstracted about and referred to as "the horizontal dimension." In 1982/1983, a program aimed at the integration of activities through a systematic, agency-wide review of operations was launched. The integration of operations was designed to assist the agency in moving away from the historical "autonomy" of the statistical program divisions. Divisions were called upon to concentrate resources on issues related to the quality and relevance of existing products, and managers were encouraged to examine the effectiveness of each program. Concurrently, the work of the regional offices broadened in scope as they assumed additional responsibility for data capture, processing and dissemination as well as user liaison services. The result, as published in a 1983 Auditor General's report was that "the Agency has now stabilized (with) ... a renewed sense of direction and purpose." The Auditor General also remarked that "with respect to meeting user needs, we found that the agency's product line is certainly relevant. We found no instances where the agency was spending significant sums on products that had no identifiable users...over the past five years, the agency has taken significant steps in reducing the response burden placed on individuals and businesses."

While Dr. Wilk was in the early years of his tenure at Statistics Canada, the number of broad structural changes to the organization were fairly minimal, whereas some of the changes made near the end of his term defined the

shape of the agency for the next two decades. These changes included the centralization and integration of headquarters operations, the recentralization of methodology, the creation of the new Analytical Studies Branch, and the creation of a communications and operations field.

The Operations and Integration Division was established in 1985 to achieve significant cost savings through the integration and centralization of operational processes. This shifted the focus of survey managers away from production operation routines and toward program design, information development, and greater research and development. The varying peaks and valleys of the workloads of individual programs were smoothed by having one centralized area focused on such processes. This also served to enrich the work of employees involved in routine or repetitive operational tasks by providing a broader scope of work. The concern with this approach was the loss of the survey manager's ability to directly influence or advise the staff processing the survey. To address this concern, a precise documented specification of the operational work required and the quality of the output expected was required in advance.

THE BACKBONE OF THE AGENCY

In 1983, a total of eight regional offices (Halifax, Montréal, Sturgeon Falls, Toronto, Winnipeg, Regina, Edmonton and Vancouver) were conducting household surveys, census operations, and increasingly business surveys. The Ottawa Regional Office had moved to Sturgeon Falls in July 1983 in keeping with a government decentralization policy designed to increase federal presence in the regions and to promote new job creation. The regional offices also handed reference and consultative services, which were increasing from year to year. In 1980, they received about 140,000 information requests, which rose to 320,000 by 1985. Dr. Wilk also ushered in a new era of closeness with the regional offices through personal visits and Christmas videos produced specifically for them. He felt strongly that they were the backbone of the agency and were instrumental in bringing about better relations with the public, better response rates, and increased user satisfaction.



Statistics Canada's Reference Centre, Montréal, 1984

New management initiatives

In an interview with employee-oriented SCAN magazine, Dr. Wilk outlined his thoughts on management. He explained that he saw management as more than careful administration and oversight of operations; more importantly, it was about taking responsibility for people and the products and services of the organization: it was leadership, planning and prudent innovation. In terms of innovation, Dr. Wilk wrote a paper entitled "Management contributions to innovation in Statistics Canada" in 1989, outlining his views on the challenges of innovation at a statistical agency. He summarized some of the intrinsic contradictions facing all statistical offices as follows:

"to lead in information development but appear to follow; to assure continuity of standard output but to innovate; to be sensitively concerned and self-critical of product quality but retain public confidence; to maintain a low profile but achieve a high public status; to support creative research and analysis within an institution which is dominated by standardized production and resource limitations."

A number of new internal management initiatives were implemented, and many are still operational today—a strong testament to their value. Dr. Wilk began to involve all managers more directly in the management process through the establishment of a management committee structure. These committees were instrumental in facilitating communication and consensus decisions in areas such as agency policy, personnel, operational planning and finance. They also broadened the institutional understanding of managers and their sense of responsibility for the agency at large. Managers contributed to the committees, not to reflect their particular areas of the organization, but to represent the interests of the agency as a whole. In addition, rotation of managers' responsibilities was introduced, which helped discourage parochialism and encourage attention to overall agency performance. Statistics Canada also established its own in-house middle management training program—one of the few departments to do so at the time. Management practice working groups were a forum through which recommendations for management changes could be brought forward. Such working groups helped foster a greater sense of cooperation and cohesion. These were also the formative years for off-site management conferences, which were the first opportunity some managers had ever had to meet one another. Since Dr. Wilk's tenure only lasted five years, many of these initiatives were still in their infancy when the next Chief Statistician was appointed. As such, it became Dr. Fellegi's challenge and ultimately great success to instill the initiatives into the culture of the agency.

The Policy Committee was established, consisting of the assistant chief statisticians and acting as the senior forum for advice on policy issues. In turn, the committee was informed by the functionally oriented management committees. The existing Executive Committee was eventually discontinued.

Statistics Canada also established regular program evaluations to assess relevance and client satisfaction with the creation of the Program Evaluation Division. In July 1981, Treasury Board issued a circular outlining the general principles and methods for the establishment of program evaluation within federal departments and agencies. Statistics Canada had one of the first evaluation policies in the federal government. By mid-1983, evaluations of several major programs had been carried out, including Balance of Payments, the Labour Force Survey, External Trade, Science Statistics, Computing, Justice Statistics, and Culture Statistics.

Embracing diversity

To increase diversity at the agency and across the public service, conscious efforts were being made in the areas of recruitment and employee support.

In 1980, for example, a program was introduced at the agency to increase its francophone population, particularly within the Economists, Sociologists and Statisticians occupational group. The agency undertook active recruitment on Quebec university campuses as part of the initiative, and, within the next four years, francophone representation in that group grew from 14% to 35%. The diffusion of bilingualism in the federal public service was also evidenced by the opening of the new Language Training Centre in 1982 at Statistics Canada, which increased accessibility to language training for employees. The joint project between Health and Welfare Canada and Statistics Canada was supplied with language teachers by the Public Service Commission.

While major efforts were made to improve representation of French speakers, employment equity had not yet become a major objective for the government or society in general—most notably absent was employment equity for visible minorities. There was some movement in the employment equity for women, and even less for Indigenous people, people with disabilities, and people in a visible minority group.

The Equal Opportunities for Women Program continued, and included regular lunchtime sessions to ensure management was aware of the challenges faced by women in the pursuit of their career aspirations. In October 1983,



Martin B. Wilk practicing his French in the new language laboratory at the Language Training Mini-centre, 1982

IN 1980, A PROGRAM WAS INTRODUCED AT THE AGENCY TO INCREASE ITS FRANCOPHONE POPULATION

the public service announced its target to double the number of women in the management category over the next five years. At the agency, to improve the representation of women in certain occupational groups and at senior levels, managers were required to plan targets for female participation and provide a timeframe in which to meet these goals. Regular annual reports reviewing progress and recommending future actions were produced for Treasury Board.

The agency also introduced a program in 1979 to increase employment opportunities for Indigenous people, including focused recruitment efforts and identification and removal of barriers to staffing and career advancement. The 1981 Census was identified as a specific area for an initial hiring focus, with almost 1,000 Indigenous people hired for the census.

A program was also introduced to increase job opportunities for the persons with a disability, including the identification and removal of architectural barriers, arrangements for aids or services, and the organization of awareness sessions for managers and other employees.

However, much more work needed to be done and a number of years elapsed before the public service and the agency began to fully draw on the strengths offered by a diverse employee population.

Greater focus on research and development

Throughout the Wilk years at Statistics Canada, greater attention was focused on re-examining and redefining strategic objectives. In May 1981, Dr. Wilk addressed the annual meeting of the Statistical Society of Canada, where he shared his perspective on the agency. He spoke of his belief that the agency's purpose was to provide an information service to the public. Testament to this shift in focus, the first annual report signed by Dr. Wilk, that of 1979/1980, was significantly different from the program-by-program detailed monotony of previous annual reports. It began by clearly delineating the purpose and contributions of the agency to Canada, to the lives of Canadians, and internationally. Effectively "staying out of the weeds," it provides highlights and focuses on the rationale for programs and activities. As opposed to a collection of descriptions of individual efforts, it paints a picture of an integrated, purpose-driven organization.

At the same time, Dr. Wilk felt strongly that resources must be continually dedicated to creative and relevant research and development; the identification and implementation of new statistics, methods and processing; and the improvement of production and dissemination. In fact, Dr. Wilk characterized the agency as "a two-headed creature, half scientific research institute, half information production agency." While the agency was unequivocally a scientific organization, it had major production responsibilities as one of the largest publishers in the country, publishing an average of nine titles every working day.

While research and analysis was somewhat strengthened during the early 1970s under Dr. Ostry's tenure, they did not return to the level of research that Dr. Goldberg sponsored and demanded; they even took to the back burner during the pressing turmoil and budgetary reduction exercises in the late 1970s. However, starting in 1983, an appendix to the agency's annual report listed a partial bibliography of research works by Statistics Canada employees.

Analysis and research functions were also encouraged and actively promoted at the agency through stronger ties with academia and research. This was achieved through a program of fellowships and internships, a network of advisory committees, and by recentralizing methodological services at the agency to allow for corporate direction and improved intellectual collaboration. This was a deliberate and profound change, and research,

development and analysis thereafter remained an important part of the agency's culture and raison d'être.

The Visiting Fellowship and Internship Program engaged leading scholars and experts to undertake assignments and share their analytical abilities with the agency, allowing them to devote more time to analysis. The visiting fellows in 1985 undertook research on topics such as linguistic minorities, mathematical demography, and the characteristics and career patterns in the teaching profession. The program helped strengthen Statistics Canada's reputation as a social science organization.

The overarching Research, Development and Analysis Committee was created to coordinate and stimulate innovation and integrate the research work undertaken by the various research enclaves at the agency. The committee carried out a coordination function, provided strategic direction, and helped formulate priorities and identify opportunities.

To coordinate and underpin the agency's program of research and development in survey methodology and data analysis, the Methodology Research Committee was established in August 1982. The committee developed and maintained a strategic plan for methodology research at the agency, operating to coordinate and oversee the research of the various methodology divisions, which, at the time, were scattered throughout the fields. In 1984, when methodology was recentralized, the committee continued to act as the branch's management committee for the methodology research program. The Methodology Research Committee also provided an annual report on its achievements and plans to the Methods and Standards Committee, which was established in 1984 as one of the new corporate management committees.

The first Statistics Canada symposium, whose theme was "a critical look at survey research from planning to evaluation," was held in September 1982. The second symposium, held in 1984, was also the first in the annual series on data analysis methods and organized by the Methodology Research Committee.

The Research and Analysis Division was established in the social statistics field in 1981, and was later absorbed into the newly formed Analytical Studies Branch. A new monthly publication, *Current Economic Analysis*, was introduced in 1980/1981. It featured analyses of current economic developments on topics of special interest such as recession and expansion in the economy, as well as the results of a new system of leading indicators. The agency had been working on a new index of leading indicators, which, as inflation continued to rise, had quickly become one of the most watched barometers of the country's economic performance by 1981/1982. The index combined a group of economic variables, including housing starts, the Consumer Price Index (CPI) and retail sales, which could all be used as indicators of the direction of the economy.

Dr. Wilk and his senior managers recognized that it was critical for the agency to analyze social and economic developments to identify emerging issues and contribute to their illumination. This work needed to be carried out with ongoing interaction and communication with policy departments. However, there was some tension as a result of the apparent intrusion of its analytical work into the terrain of these other departments. This "apparent intrusion" was and remains a necessary element of a centralized statistical agency, and was something that the agency was particularly aware of as it grew its research and development program.



Employees from the Labour Force Survey beginning their work in Yukon, 1981

Greater collaboration and outreach

The agency entered a new era of outreach and interdepartmental cooperation during the early 1980s. A number of joint projects were initiated with other departments, and there was increased consultation with users on data needs, including various interdepartmental and federal–provincial consultations and task forces. Bilateral steering committees were put in place to manage interfaces with many key government departments, complementing existing federal–provincial coordinating committees. For example, at the request of the Yukon territorial government, Statistics Canada was testing the feasibility of extending the Labour Force Survey to the Yukon Territory, as it was undergoing a sample redesign, scheduled for completion in late 1984. The agency's network of expert advisors was bolstered through the creation of many professional advisory committees, including for the prices program, labour market statistics, and for the System of National Accounts. Such external advisory committees met regularly to monitor statistical programs and recommend improvements in their scope or content.

The agency also established a program of fellowships and internships in an attempt to close the gap between academic statisticians

and government statisticians. Dr. Wilk gave a notable address to the Statistical Society of Canada in June 1985 to this effect entitled "the relationship between statisticians and statisticians." He discussed how government statisticians had not learned to maintain an ongoing dialog with academic statisticians (he referred to them as blue collar and white collar statisticians), and, as a result, risked underutilizing a rich and fundamentally important resource. This address was subsequently published in the *Journal of Survey Methodology* in December 1985, and was later discussed at the Conference of European Statisticians.

In a widespread effort toward greater outreach, the agency produced *Statistical Highlights*, a weekly bulletin that went to all Ministers, as well as to all senior officials of federal departments. In addition, Dr. Wilk participated in weekly Deputy Minister "Mirror Committees" on social development and on economic and regional development. These committees met to discuss policy initiatives, share information about government policy and support interdepartmental coordination. Such meetings ensured that Deputy Ministers were aware of where other departments and ministries stood on policy proposals to ensure Ministers were fully prepared prior to Cabinet committee meetings.

Methodology hits a new stride

Since being dispersed across the subject-matter fields in 1978, the methodology divisions had continued in their important service role, but without the benefit of a "central concern for methodology," to use Moser's words. One positive aspect of that period was the continuation of the *Survey Methodology* journal. Founded in 1975, the journal published papers from methodology staff and others and was freely distributed within and outside the agency. It developed a constituency, and garnered professional recognition and international stature. It became an official Statistics Canada publication in 1984.

Dr. Wilk's arrival signaled a rebalancing of methodology, with a renewed focus on both current and future needs through greater research and development. He emphasized the absolutely fundamental priorities of relevance, innovation and development of statistical programs. In 1982, the Methods Development Branch was created in the social statistics field, bringing two of the three methodology divisions together with Geography and Administrative Data Development functions. Full centralization occurred in 1984, with the creation of the Methodology Branch within the Informatics and Methodology field.

A new course on survey methodology was offered to employees. The Advisory Committee on Statistical Methods was established as a panel of international experts, and held its inaugural meeting in May 1985. It has met twice a year since that time to provide expert advice and review of methodological developments for the agency. It has been chaired by a series of eminent statisticians including Morris Hansen, Wayne Fuller, Graham Kalton and Michael Brick. Important professional relationships were also developing with the U.S. Census Bureau and with the statistical organizations of Sweden and Great Britain.

International relationships expand

Under Mr. Duffett, the international co-ordinating function was performed by Mr. Duffett himself and Simon Goldberg. Dr. Ostry seconded a resource to her office to take care of such matters—and it was from this that the Office of International Relations, reporting directly to the Chief Statistician, was born in 1973. Three years later, the International Relations Division was created. During the 1970s and 1980s, the division was active in the Commonwealth Statisticians Committee, the Inter-American Statistical Institute, and the International Statistical Institute and its sections.



Simon Goldberg and Martin B. Wilk, 1982

IN 1982, SIMON GOLDBERG WAS INVITED BACK TO STATISTICS CANADA TO GIVE A KEYNOTE ADDRESS AT A SEMINAR ON "THE ROLE OF TECHNICAL COOPERATION IN THE FURTHER DEVELOPMENT OF THE INTERNATIONAL STATISTICAL SYSTEM."



THE DAWN OF A VALUABLE CONNECTION WITH CHINA'S NATIONAL BUREAU OF STATISTICS

The year 1984 marked the beginning of a reciprocal relationship with the National Bureau of Statistics (NBS) of China, when Dr. Wilk approached the Chinese delegation at a meeting in New York to suggest regular exchanges between the two statistical organizations. He travelled to China in 1984 to meet with central and provincial statistical bureau representatives, and the Chinese delegation reciprocated in 1985, at which time a Memorandum of Understanding was signed. It was agreed that the two agencies would endeavour to develop and maintain a program to facilitate the exchange of sample questionnaires, released publications, the results of statistical research and analysis undertaken as considered appropriate by both parties, as well as joint research and development projects whenever such initiatives would be mutually beneficial and feasible.

Dr. Wilk continued to foster relations within Canada and internationally, through collaboration in international meetings and professional exchanges, and by welcoming visitors from other countries. This resulted in the bolstering of Canada's international statistical reputation. For example, in 1982, Simon Goldberg was invited back to Statistics Canada to give a keynote address at a seminar on "the role of technical cooperation in the further development of the international statistical system." He also gave a briefing to the Policy Committee to generate interest in the United Nations' Household Survey Capability Programme—a major international technical co-operation effort in statistics that was co-sponsored by the United Nations (UN), the United Nations Development Programme (UNDP) and the World Bank. The programme was designed to help provide a statistical framework for the planning purposes of developing nations and assist them in achieving self-sustaining national statistical programs. Simon Goldberg became coordinator of the programme at the UN in 1979 after retiring from as Director of the UN Statistical Office.

Beginning in 1980, Statistics Canada was also leading an international task force on broadcasting, television and film industry statistics. The task force was established not only to develop a standard system of cultural statistics, but also to assist developing countries in organizing culture statistics programs and to ensure that international comparisons of such statistics were valid. Such collaborative endeavours contributed to the continuing development of internationally comparable statistics and improved the Canadian statistical system.

STRATEGIC AND RESPONSIVE COMMUNICATIONS

One of Dr. Wilk's first initiatives was to establish effective media relations, which included routine monitoring of media coverage. Recall that previously the agency did not have a clear policy on media relations and the approach had been to sit tight and hope that the negative attention would soon pass; they were only to engage with the media if absolutely necessary. Dr. Wilk instituted the protocol of acting quickly to correct erroneous statements or unwarranted criticisms. This protocol resulted in positive outcomes not only on employee morale, but it also positively affected the agency's relationship with the public. A firm policy of full interaction with the media was established, including being entirely open to their inquiries and keeping them closely informed of the agency's work. Senior officers were encouraged to communicate openly with the news media and participate actively in outside professional and public activities. A training program was also being developed in collaboration with Carleton University to improve the communications skills of researchers as well as the statistical knowledge of communicators.

Overall, the agency was becoming more strategic with its communications, and to this end, a marketing and information branch was established in 1981/1982 under the Assistant Chief Statistician (ACS) responsible for the newly created Communications and Operations field. While the Marketing Services Branch had been created under an ACS almost 10 years earlier, efforts were being made to improve and centralize the agency's publishing policy and operations, and focus more on the agency's role as a service provider. The agency needed to develop expertise in sales and service as well as public affairs to ensure it was maintaining good relations with the public. The new branch was organized in such a way that it was "constituency oriented" or specifically tailored to the needs of its various clients, including federal, municipal and provincial governments; the business community; professional groups; the general public; news media; and the international statistical community.

The year 1985 marked over half a century of Statistics Canada's *The Daily*, which was first published in 1932 as the *Daily Bulletin*. In January 1985, *The Daily's* official release time was moved from 1:00 pm to 10:00 am to improve its timeliness, and advance notification of the next day's major releases was introduced for the media via the Canada News Wire service.

One of the concerted efforts underway was to improve the availability of "information about information." To this end, in 1980/1981, a statistical data documentation system was developed to provide users with detailed information about each of the agency's surveys, the data they collected, and where the data could be found. In addition, the first comprehensive collection of metadata for the full range of the agency's data collection activities was published as *The Inventory of Statistics Canada Questionnaires on Microfiche, 1980*. It provided survey designers with insights



The Daily, *Statistics Canada's official release bulletin, 1986*

into the kinds of questions asked by Statistics Canada, and provided analysts and data users with information about the questions and related material used to generate data. A new publication, *The Social Concepts Dictionary 1980*, was also launched as a reference work to help with the interpretation of social survey results. The intention of such initiatives was to help data users evaluate the strengths and weaknesses of their data sources, and help survey designers frame their own questions. Teaching materials were also developed over a four-year period to make agency publications more useful in classrooms. This was done in response to comments from teachers' associations to the effect that the agency's statistical materials were difficult to use for teaching purposes.

The agency even participated in the 1981 Canadian National Exhibition in Toronto, along with other federal departments and agencies. Statistics Canada's display consisted of written and graphic material, audiovisual material, a CANSIM terminal and Telidon equipment. A computerized quiz challenging people's knowledge of their local community was very popular, as was a daily draw for a copy of the *Canada Handbook*.

Inklings

The agency had its own radio spot, "Inklings," a statistical information program produced monthly and distributed without cost to 200 FM radio stations across the country. Inklings provided Canadians with short soundbites on topics of interest, interspersed with relevant facts and figures, which helped humanize the agency's statistics and make them more user-friendly for Canadians. The program promoted awareness among the Canadian public about the agency's activities, products and services, and was an important tool in the 1986 Census



Various statistical projects on display, circa 1980

public communications project. Each monthly series featured up to 10 Inklings, and each was estimated to have been broadcast about 2,000 times. Examples of the topics covered include automobile expenses, Christmas trees, moving expenses, the Consumer Price Index, and the tin can industry. The success of the inexpensive, proactive program, which was in place from 1982 until the early 1990s, reflected positively on the agency. It was discontinued in the early 1990s, primarily as a result of an inability to measure the effectiveness of the program.

This wasn't the first radio spot for the agency. In 1933, as an offshoot of the first *The Daily* and *Daily Bulletin*, which first appeared the previous year, material was supplied to the Radio Commission of Canada for a two-minute broadcast called "A fact a day about Canada," which was subsequently reprinted each month in a bulletin popular among teachers.

A new information age

Computerization of statistical work had gone through the worst of its growing pains, and the use of computers was finally growing beyond number processing into word processing — which translated into significant benefits when processing the agency's unending stream of publications. Equally important, new staff who were comfortable with and ready to embrace technology were emerging. By 1981, there were approximately 70 word processors (called MICOM) at Statistics Canada, many in the Publications and Text Processing Section of the Administrative Services Division. The machines were operated by 75 text processing operators, all of whom had undergone retraining to make the switch from typewriters.

Work was underway to develop and improve the efficiency of communication by taking full advantage of modern information technology, such as expanding the capacity of CANSIM and making data more accessible and useful through the use of visualization tools, of which Telidon is one example. Statistics Canada was also working on something called "Telechart," which combined the colour graphics of Telidon with the retrieval functionality of CANSIM to create a dynamic graphic display system. The principal medium of dissemination for the agency at the time was still print media, but the use of other media such as CANSIM, microfiche and computer tapes was progressively increasing. The quarterly national accounts, for example, were released on floppy disks in the late 1980s and early 1990s.

These were the years of the "Telidon trials." Telidon (a combination of Greek words meaning "seeing at a distance") was the brainchild of the Canadian Communications Research Centre,



Employee operating a MICOM, 1981

which refined a two-way technology first introduced in Europe to create an interactive information delivery system that used the family television. It was more or less a combination of the telephone (communication over distance), the television (displaying letters and images on a screen) and the computer (manipulating and retrieving information). It was truly an exciting time for communications, with Telidon making international headlines with predictions of great success. The 1981 Yearbook made reference to Telidon: "Two-way TV will render possible in the 1980s the general use of such hitherto futuristic services as electronic mail, teleshopping, electronic banking, remote sensing and security services, teleconferencing, computer-conferencing and information-retrieval from data banks all over Canada and the world."

The federal Department of Communications funded the development of the Canadian

system, which was undergoing a year of extensive testing, while the Telidon trials were organized by Supply and Services Canada's task force on service to the public. This new technology was seen as a way to improve direct contact with the general public, and Statistics Canada jumped on board to become the first information provider to all field trials. In fact, the agency was the largest information supplier among all government agencies.

A Telidon task force led by David Worton developed an extensive collection of information in English and French for viewing in trial cities. The packages developed for the field trials included "the Wise Old Owl Quiz," "Statistics Canada at your Service," "Fast Facts on Canadians," "Energy in the Home," as well as a current indicator report, a CPI feature, a current economic feature, and a local area feature. Some trials were underway in 1980, and all were in motion by 1981. Each field trial was sponsored by different organizations, including the federal government, CBC, TVO, a cable TV company, and a number of telephone companies.

The new technology ultimately did not catch on, as Telidon sets were much more expensive than televisions, and they also came with additional telephone charges for their use. Consumers and businesses lost interest by about 1981, and government support ended in the mid-1980s when widespread adoption failed to materialize. Telidon was, however, important to the ongoing development of information technology in Canada, and the inventors received several awards for their contributions.

NOTABLE MILESTONES IN THE STATISTICAL PROGRAM

In 1980/1981, satellite remote sensing technology was making inroads at the agency via an experimental project conducted jointly by Statistics Canada and the Canada Centre for Remote Sensing. The successful estimation of the New Brunswick potato crop acreage by satellite remote sensing broke new ground by demonstrating that satellite imagery combined with more traditional area estimation procedures could lower respondent burden, produce timely crop distribution maps, and produce reliable estimates for sub-regions. By the summer of 1983, crop area information was being gathered by remote sensing to estimate potato area in New Brunswick and Prince Edward Island, canola area in certain parts of Alberta and Manitoba, and grains and summerfallow areas in southwestern Manitoba. Plans were also being laid to extend the use of this technological endeavour throughout the province of Manitoba.

The Science and Technology Statistics Division was created in 1983 to reflect the growing importance of scientific research and development to Canadian economic development, international competitiveness, and the well-being of Canadian society. The division encompassed the existing Science Statistics Centre, with personnel and budget transferred from the Ministry of State for Science and Technology. It provided information to help analyze such issues as the adequacy of resources devoted to research and development, the availability of scientists, engineers and technicians, the accessibility of advanced technology to Canadian businesses, and the impact of new technology on international competitiveness and future requirements for skills. In addition, a program of science and technology indicators to help effectively develop Canadian technology was being created, guided by an interdepartmental advisory committee.

IN THE EARLY 1980s, CONCERNS ABOUT CANADIAN PRODUCTIVITY WERE ELICITING QUESTIONS ABOUT THE QUALITY AND LEVEL OF CAPITAL STOCK ESTIMATES

In the early 1980s, concerns about Canadian productivity were eliciting questions about the quality and level of capital stock estimates, which had previously been compiled using existing administrative records. As such, an interdepartmental research group was formed in 1984/1985, with representation from the Bank of Canada, the Economic Council of Canada, the Department of Finance and Statistics Canada, to examine the feasibility of a capital stock survey. The survey was being considered as a means to provide insight into the renewal process of technology, technological obsolescence and structural changes in the economy, which could help determine the causes of productivity decline in Canada. A trial capital stock survey proved feasible and investment surveys were revised to include details on types of machinery, the nature of fixed assets and anticipate lifespan, technical obsolescence and other information. A new accounting of capital spending for 1985 was set for release the following fiscal year.

In 1981/1982, the agency was beginning to conduct developmental work to allow for the inclusion in the estimates of non-market activities such as household or volunteer work and the "underground" or "unmeasured" economy. In 1983/1984, the agency released the first national balance sheet accounts for Canada. The agency was also looking at potentially adding a regional dimension to the accounts, and that same year released its first estimates of provincial income and expenditure accounts for 1979. The national accounts also undertook a study in the mid-1980s for the Royal Commission on the Economic Union and Development Prospects for Canada, which showed that the inflationary process since 1961 had shifted the economic resources of the country from the personal and non-residential sectors to the government and business sectors. It is worth mentioning that, over the preceding decade, Statistics Canada had lost its place in the international community in the area of the national accounts, but regained it under Dr. Fellegi's tenure with his strong stance on international engagement.

New approaches for business statistics

The year 1984 also marked the launch of the Business Survey Redesign Project (BSRP), a major six-year project to redesign the entire spectrum of business surveys, based on a revitalized Business Register and intensive exploitation of tax data. The project was launched in response to concerns about possible weaknesses in Statistics Canada's infrastructure, which were the result of a number of recent developments, including computerization of data; allowing data confrontation at the microdata level; growing concerns about response burden; and the development, but not yet ubiquitous use, of a central business register. Over the preceding three decades, the Business Survey Program had been built up by the gradual addition of individual surveys



TIME USE STUDIES

Time use is said to be the currency of the social system. In fact, interest in time use grew from early studies of the living conditions of the working class in response to pressures brought about by increasing industrialization. The importance of quality of life and economic and social well-being were increasingly being recognized throughout the 1970s and 1980s. While the Gross National Product had traditionally been used to measure well-being, it was becoming evident that measurement of market activity was but one facet of social and economic well-being. Non-market activities such as household production, volunteer work and other factors including natural resources and environmental impact also needed to be taken into account. The forerunner of large time use studies was the Szalai Multinational Time Budget Study in 1965, which was conducted as an international collaborative effort in 12 countries (Canada was not one of them). Many countries, including Canada, went on to conduct their own time use studies according to the standards set by the multinational project. The Institute of Public Affairs at Dalhousie University conducted one of Canada's first major time use studies in the cities of Toronto and Halifax in 1971.

Statistics Canada's interest in conducting a national time use study culminated in a time use pilot survey in the fall of 1981. In fact, an oversample was drawn in Halifax as part of the pilot to allow for comparison with the Halifax study 10 years earlier. The study was conducted by a consulting company, with sponsorship and funding from Statistics Canada, the Department of Communications, Canada Employment and Immigration Commission, and the Department of Supply and Services. The goals of the project included determining whether a time use study could be conducted by telephone and whether such a study could work in the Canadian context. While telephone interviewing had been used for a portion of the sample of the Labour Force Survey since the 1970s, its potential for more extensive use was being investigated. The feasibility of sampling households by telephone by random digit dialing was also being tested, and, in fact, the early eighties were also the years of the development of the first computer-assisted telephone interviewing system at the agency, for the Traveller Accommodation Survey.

The time use pilot proved successful, allowing for national-level data on the time use of Canadians to start being collected on a regular basis in 1986, in the second cycle of the General Social Survey. It was subsequently collected at regular intervals by this new survey.

meeting various information needs. Each of the approximately 200 business surveys were managed by the various divisions, which were all responsible for devising and maintaining their own methodology and clerical staff, including compiling a detailed list of the businesses in their area of interest. The BSRP combined all these lists into a single corporate database, which could be used by all surveys. This was anticipated to be more cost effective and more effective overall, and greatly improved through a closer relationship with the Canada Revenue Agency. It was also expected to improve the quality of business statistics and make it easier to compare data from business and economic surveys.

The project was seen as a trailblazer as it took a large number of seemingly different problems from across the agency and provided an integrated approach to their solution. Many smaller businesses saw their requirement to respond to surveys eliminated altogether. Next to the census, it was the agency's largest Bureau-wide initiative. While some divisions were previously using the Business Register as a source of information, they first had to be convinced that was a good idea. A corporate Business Register was indeed successfully established, but maintaining the list of 2 million or more businesses was certainly challenging.

While some divisions continued to use their own lists, the Business Survey Redesign Project was instrumental in converting some divisions to the Register, such as the new monthly Survey of Employment, Payrolls and Hours. The agency saw further initiatives in the next two decades that continued to convert business surveys into using a corporate register.

The new Survey of Employment, Payrolls and Hours was created to improve quarterly labour-income statistics. After a 12-month parallel run, it replaced four longstanding employment surveys in the spring of 1983. It was developed with respondent record-keeping practices in mind and, as a result of new sampling techniques, 30,000 fewer businesses were being surveyed on employment, earnings and hours.

One of the research and development projects undertaken by the agency was a new approach to collecting statistics on small businesses. Small businesses were being recognized as important creators of jobs and economic wealth, which resulted in demands for more information on their contributions to the national economy and for data that would be useful in their day-to-day operations. The strategy removed the burden of annual statistical reporting from most of these small businesses by making use of the information they provided on tax returns. This initiative also paid dividends by fostering the development of a comprehensive database exclusive to small businesses. The Small Business Statistics Group was established in June 1985 following consultations with the federal, provincial and territorial governments, as well as with representatives of the small business community. A list of the most urgent data needs was drawn up and agreement was reached for joint funding by federal, provincial and territorial Ministers responsible for small business.



Martin B. Wilk presenting a certificate of appreciation to an employee from the Business Register Division, circa 1980

Non-resident control in the Canadian economy

The agency started collecting information on the extent of foreign participation in Canadian corporations and unions in 1962 under the *Corporations and Labour Unions Returns Act*, for which the Dominion Statistician was given specific responsibility. The information was used to evaluate the extent of non-resident control in the Canadian economy, with the Act prescribing revenue thresholds above which corporations were obliged to complete an ownership return. However, the reporting thresholds were static and, with inflation, the number of corporations required to file a return under the Act grew. It was found that this increased volume added no value for attaining the goal of measuring foreign control in the Canadian economy and it imposed a considerable burden on a significant number of businesses. Amendments to the Act received royal assent in July 1981 and brought about a reduction in paperwork burden on small businesses, exempting more than 96,000 small business from filing returns. This was achieved by combining a series of questionnaires into one single integrated questionnaire on financial accounts and international transactions for other businesses. It also permitted better and fuller coverage of financial data on labour unions, increased the usefulness of the information and improved access to the data by federal departments and agencies, eliminating duplication.

New approaches for social statistics

The enactment of the *Canadian Human Rights Act* in 1977/1978 increased awareness of the protection of individual privacy, and the legislated ability of Statistics Canada to compel survey response came under public scrutiny. With the growing use of computing, the agency was also making greater use of administrative data for statistical purposes, and beginning to link data to increase their power and utility. Consequently, the *Statistics Act* was amended in 1981 to permit surveys to be conducted on a voluntary basis, while maintaining the mandatory nature of the censuses. Statistics Canada undertook making all of its household surveys voluntary, with the exception of the Labour Force Survey. Business surveys, including all agricultural surveys, remained mandatory collection instruments, mostly as the issue of individual privacy was not as applicable to businesses, and because the impact of voluntary response on the quality of business data was considerably more important, especially given that some businesses are more important to estimates than others.

Two new acts took effect in 1983 in the move toward a more open Government in Canada: the *Access to Information Act* and the *Privacy Act*. The first established the legal right of access to information under the control of a government institution; the second protected the privacy of individuals and their right to access their personal information held by federal organizations. The agency created the necessary infrastructure to handle such requests, including responding to requests for information on its "workings" such as internal administration and planning, providing individuals with access to their own personal documentation.

In the early 1980s, legislation was introduced to establish the Civilian Security Intelligence Agency, which was at first to have right of access to all government databases, regardless of existing legislation. Dr. Wilk managed to successfully communicate the justification of an exception for the agency based on confidentiality. He explained the concept of confidentiality as "not a claim of the moral superiority of statisticians. Rather this is a consequence of the reality that 'reliability, objectivity and confidentiality' are all essential, and mutually supportive, in the functioning of the profession of statistics and the operation of a statistical agency."



Advisory Services employee, circa 1980

In 1984/1985, the National Task Force on Tourism Data was established by federal, provincial and territorial tourism Ministers consisting of senior executives from the public and private sectors, under the chairmanship of Dr. Wilk. While tourism had long been recognized as important, its economic contribution had never been accurately measured. The goal of the task force was to create a reliable database through which the performance of the sector could be measured and monitored. The task force engaged more than 50 organizations in business, government, trade associations, and universities, and presented its final report to tourism Ministers in November 1986.

Demand for data on subpopulations including disabled persons, women, the Indigenous population and the elderly continued to increase, and the agency responded with special studies and data packages. In response to a 1981 recommendation by the Special Parliamentary Committee on the Disabled and Handicapped, the agency was developing a database on disabled persons in Canada to provide a factual basis for planning, implementation, and evaluation of programs helping the disabled participate more fully in society. To move forward with building the database, the agency carried out two supplements to the Labour Force Survey on Canada's disabled population in 1983 and 1984. The survey was the first attempt at the collection of national data on the prevalence of disability according to functional definitions accepted by the World Health Organization. The survey inquired into the size and characteristics of the disabled population and the impact of the disability on lifestyle. A major compendium on disability was produced based on the survey and released in early 1986, and the 1986 Census later included a question designed to identify the disabled population across the country to allow for a richer post-censal survey addressing much more detailed information relating to the nature of disabilities and their impact on employment, education, transportation and leisure activities.



Martin B. Wilk and some members of the National Task Force on Tourism Data, 1987

In 1982, the agency carried out the National Urban Victimization Survey in seven cities. Pre-tests had been carried out in Edmonton in 1977 and in Hamilton in 1978, and the first full scale survey in Vancouver in 1979. Although the frequency of crime was previously available from administrative records, comprehensive information was not available on the risks,

THE ORIGINS OF THE CANADIAN CENTRE FOR JUSTICE STATISTICS



The problem of mixed jurisdiction in the administration of justice in Canada made it difficult to produce or obtain standardized and timely information. A key historical challenge to compiling national justice statistics had been a history of difficulty obtaining justice data from all of the provinces, largely owing to the need to negotiate bilaterally with each province for the provision of provincial statistics. The Justice Statistics Program's effectiveness relied completely on provincial support, and these bilateral relationships had been progressively declining. After repeated attempts at remedial action, the provinces eventually set up their own organization to compile national justice statistics, but its long-term cost and effectiveness were questionable. As such, a federal–provincial task force, the National Project on Resource Co-ordination for Justice Information and Statistics, chaired by the Ontario Deputy Provincial Secretary for Justice, was established in 1979 to examine the state of national justice statistics and to develop a formal plan for their improvement.

The task force presented its report to all federal and provincial Deputy Ministers responsible for justice in June 1980. It recommended the creation of a quasi-independent justice statistics satellite (the Canadian Centre for Justice Statistics and Information) within Statistics Canada, and a Justice Information Council (consisting of the provincial and federal Deputy Attorneys-General and Deputy Ministers of Justice and the Chief Statistician) to set priorities, ensure resources, and give direction to the satellite through its Executive Committee. The report also recommended a national user advisory committee of non-governmental users of national justice statistics. While all federal and provincial Deputy Ministers responsible for justice eventually endorsed the satellite model, there was some lingering apprehension on the part of the provinces as to the quasi-independent status of the satellite, with many preferring a fully independent centre. It was accepted in principle, and mechanisms were put in place to develop program proposals, establish guidelines and outline principles for operation. The compromise was that, after three years, if the operation was not proving successful, there would be a move toward a more independent centre. The Canadian Centre for Justice Statistics commenced operation in 1981, with the official opening announced at the federal–provincial meeting of justice Ministers in December 1981. The model proved immensely successful, with the original three-year term being extended for an additional five years in 1984, and it continues to operate to this day.

impact or extent of victimization. Sponsored by the Department of the Solicitor General of Canada, the survey covered the extent and distribution of selected personal and household crimes, the risk of being a victim of crime, the impact of selected crimes in terms of financial cost and physical injury, public perceptions of the criminal justice system, and victims' needs.

A new small area data program

By 1981/1982, the agency was carrying out consultations with federal government departments and other users on the establishment of a comprehensive small area data program to integrate and improve access to currently available small area data and develop additional small area data sources. The small area data program was approved by Cabinet and launched in 1983. The program exploited existing bodies of data, with marginal added resources, to create coherent and consistent social and economic information for small areas. Consultations were carried out with other federal departments and provincial and territorial governments to understand their data needs and any data sources that might be accessed together. The first goal of the program was the publication of federal electoral district profiles, compiled from existing small area data sources. This was the first systematic pooling of data on a geographic basis from multiple subject-matter areas. The agency co-sponsored an international conference on small area statistics in May 1985 to learn from the experiences of other countries.

One of the first products as result of the small area data program was the Canada Conversion File, released in 1985, which allowed analysis to obtain census data by postal code areas. The next major product, released a year later, was a five-volume compendium of data on the socioeconomic characteristics of the residents of urban and rural neighbourhoods.



Employes promoting the 1981 Census at a fair in Winnipeg

THE CENSUS PROGRAM

The 1981 Census again used the theme "Count yourself in" to personalize the census for Canadians. The long-form questionnaire was sent to 1 in 5 Canadians, instead of 1 in 3 as it had been for the previous census. As part of the approval process for the census, the agency was required to investigate the possibility of using administrative and survey sources to replace census data in whole or in part, by 1986. It was concluded that no feasible alternative existed at the time. There were a few new initiatives, such as successful negotiations with Revenue Canada to use the facilities, personnel and computer equipment in its regional centres to capture census data on computer tape. The cost and time savings for data production were considerable. This process was not without controversy, however, as it spawned unsubstantiated allegations that confidential information was being provided to Revenue Canada.

Discussions were also being held with Canada Post for co-operative development of a linkage between postal codes and census data. As a result, data retrieval by postal code was available for 39 urban centres in Canada by the end of 1984. The agency could provide users with custom census information by postal code for user-specified areas, such as traffic zones or planning districts.

As well, a pilot was carried out for the census whereby computerized maps were used for a sample of enumerators, showing street patterns, names, the range of addresses for each block, and other useful features. The computerized maps proved to be valuable collection tools, and the agency subsequently undertook to work on a system to produce maps for 1,200 census tracts in urban areas for use in the next census, which helped enumerators cover their assigned areas. Enumerators were equipped with computer-designed maps of their areas, showing street patterns and names, the range of addresses for each block, as well as other geographical features. For the census publication program, the agency produced a computer-assisted metropolitan atlas portraying the results of the 1981 Census for 12 large urban areas. Maps depicted about 35 themes such as the distribution of population by age, language or income. Public use sample tapes were also produced to help researchers by providing access to a sample of records from non-identifiable respondents.

It was deemed a very successful census, with more than 99% of all Canadian households enumerated in under one month, the final population count delivered two months ahead of schedule, and the census being more than $3 million under budget.

The 1986 Census did not start out quite so well. In September 1984, the government-wide Task Force on Program Review was established by Prime Minister Mulroney to review government programs with the intent to produce programs that were simpler, more understandable, and more accessible to Canadians. Program reviews were carried out by study teams, often referred to as the "Nielsen Task Forces" as the initiative was led by Deputy Prime Minister, the Honourable Erik Nielsen. In fact, Michael Wolfson, who later became an Assistant Chief Statistician at the agency, was loaned to the government to help with the initiative. Assistant Chief Statistician David Worton was on the major surveys study team, which reviewed the major national survey programs and related information dissemination systems.

With the launch of these program reviews, the government was also calling for a variety of expense reduction strategies. While the Census Program had been initially approved by the government under Prime Minister Pierre Trudeau in April 1984, with content approved in June, it was subsequently cancelled as one



Hear ye! A town crier spreads the news: "The 1986 Census is coming…"

of the cost-saving measures announced by the Minister of Finance under the government of Prime Minister Mulroney in a November 1984 economic statement. The agency was instructed to conduct a minimal Census of Population consistent with the requirements of constitutional law, and was therefore preparing to take a population count only, and only in the provinces of Saskatchewan and Manitoba. The 1986 Census of Agriculture was to be fully cancelled.

Trade groups, academics and other government departments rallied to oppose the decision, and a committee of Deputy Ministers was established to review the decision. After lengthy discussions, negotiations and analyses, the Census Program was reinstated. As a condition of reinstated, the agency would identify cost savings of $100 million over five years, equal to the amount that would have been saved further to the cancellation of the census. Dr. Wilk was adamant that while the budget reduction could be imposed on the agency, it would be up to him to decide where to find those savings, and they would not need to necessarily come from the census. A press release dated December 21, 1984, stated, "In keeping with the government's commitment to reduce expenditures, Statistics Canada has developed an alternate plan in order to realize the full $100 million savings." In the end, a total of $26 million was identified from cost savings, $44 million came from recovering costs of products and services, and $30 million came from the use of earmarked funds for a federal government student/youth employment program to hire 25,000 enumerators for the census—a good portion of the total 45,000 temporary jobs required for census operations. The $26 million in cost savings were achieved by relying on and extending the systems and methods from the 1981 Census, curtailing publicity, including the elimination of paid advertising. In fact, the census made use of an alternative public communications campaign, through the voluntary support of more than 1,000 corporations, associations and media organizations, which freely distributed promotional items or provided free radio, television or print publicity. The Census National Advisory Committee was also established to advise the Minister Responsible for Statistics Canada on public communications and other challenges related to the 1986 Census. This group comprised 29 volunteers from business, media, voluntary associations, universities and other institutions across Canada.

The 1986 Census broke new ground: for the first time, the short form was bilingual, and the long form was delivered in the respondent's preferred official language, or delivered in both languages if the respondent's preferred language was unknown. In addition, the census package was revised to include reasons why each question was asked. These reasons, along with other selected materials, were translated into 33 languages to assist with the enumeration of persons who did not speak either official language.

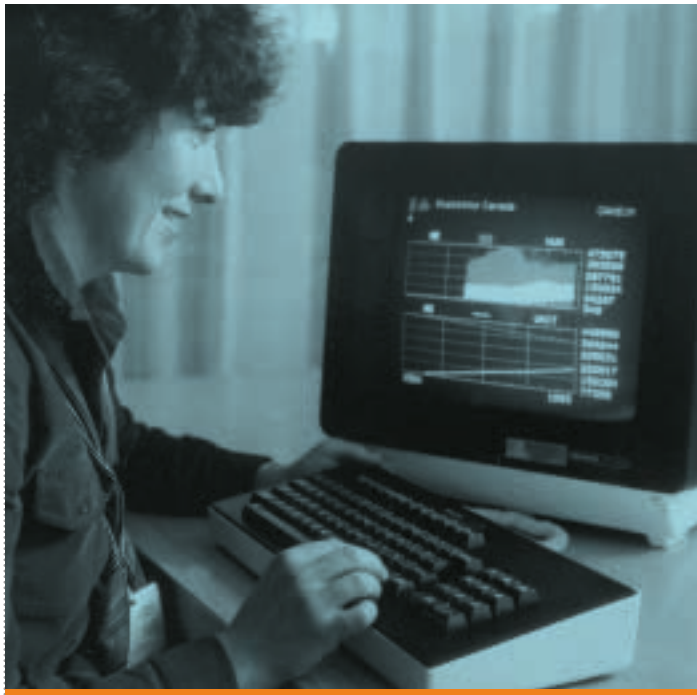
AN INCREASED EMPHASIS ON COST RECOVERY

The fallout marked an increased emphasis on cost recovery to increase revenue from the sale of statistical outputs. As a consequence, the agency became revenue-dependent, requiring the sale of its products and services to partially fund the cost of reinstating the 1986 Census. Prices of products and services increased sharply, and licensing was introduced for the redistribution of data.

The agency also obtained full operational responsibility for its publications, including costs and revenues, and set up an organized and integrated management of publications. This allowed for the cost recovery of publication expenditures. The cost recovery policy then began to be promoted where appropriate by federal government policy in 1984, as part of the government-wide effort to control public spending. Statistics Canada priced its products to recover printing, mailing and handling costs, and charged for computer and staff time required for special tabulations. Methodology, system maintenance and analysis were considered a public good and were not charged to the public. The agency continued to provide a free statistical service by delivering its publications without charge to libraries across Canada, as well as at all regional offices.

By the mid-1990s, the agency was generating about 5% of its budget through the dissemination of print and electronic products, and about 15% of its budget through cost recovered surveys.

There was a downside. For years, the agency did not recover most of the costs of publication, charging no more than a nominal fee for printed publications. The relatively sudden shift to more fulsome cost recovery angered many of the agency's clients, who particularly disliked the $3 charge per time series from CANSIM. Cost recovery made the agency and its clients more aware of the expenses involved in providing services, and while it served a purpose at the time, it likely also discouraged more widespread use of official statistics.



Employee working with CANSIM, Statistics Canada's key socioeconomic database, 1985



The flagship publications, 1985

THE EARLY EIGHTIES UNDERPIN A NEW ERA

Dr. Wilk announced his retirement to the agency on August 14, 1985. Although he had been asked by the Prime Minister to carry on in his position, he declined, indicating that he felt he had substantially achieved the mission he accepted in 1980, and that the agency was on a trajectory that could continue without his continued role. As of September 1, 1985, he served as a special advisor to the Privy Council Office for the remainder of the year, and then retired from the public service in January 1986.

After his retirement as Chief Statistician, Dr. Wilk was invited to give a talk on the previous five years to the agency's offsite Management Conference in October 1985. Among his many positive remarks, one strong indication that the agency had turned a corner was that "…in the most severe recession period that Canada has experienced since the 1930s, when month by month this institution grounds out the bad news of high rates of inflation, of ever-increasing unemployment, of decline in GNP and other sad economic news, during all of that period of time there was not any sustained serious criticism or doubt regarding the quality or the objectivity of the information that this institution produces. I think that this is something to be really proud of."



Farewell party for Chief Statistician Martin B. Wilk, 1986

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CHAPTER 4

A stronger agency: 1985 to 1995



Ivan P. Fellegi receiving the Order of Canada from the Right Honourable Ramon Hnatyshyn, 1992

THE PASSING OF THE REINS

In 1983, Dr. Wilk arranged for Dr. Fellegi to be promoted to the newly created position of Deputy Chief Statistician in 1984. Not only did he make it obvious that there was a clear candidate for succession, but also the arrangement allowed for a period of understudy. Truth be told, Dr. Fellegi was likely already a prime candidate as, five years earlier, at the time of the search for a new Chief Statistician, the selection board had approached him for an interview, but he had indicated that he did not feel the time was quite right.

In 1985, Dr. Wilk wrote to then-Prime Minister Brian Mulroney to indicate that he wished to retire. Later that summer, Dr. Fellegi was in Bruges, Belgium, with his family, and received a message to call the Clerk of the Privy Council, Gordon Osbaldeston. Mr. Osbaldeston informed him that the Prime Minister wished to know whether he was ready to accept the job of Chief Statistician of Canada. Dr. Fellegi accepted and became Chief Statistician of Canada on September 1, 1985, having already worked at the agency for almost 30 years.

THREE KEY CULTURAL CHANGES

While the agency had begun its transformation under the wing of Dr. Wilk, it was under Dr. Fellegi's leadership that many of the initiatives that had been introduced in the first half of the 1980s were strengthened and solidified into the working culture of the agency. Three key elements that were hallmarks of this time period were a continuing and deliberate investment in people, strengthened research and analysis with a focus on sound methodology and collaboration with academia, and a greatly enhanced international reputation.

Investing in people

Dr. Fellegi wholeheartedly agreed with Dr. Wilk's thinking that large-scale reorganizations tended to be disruptive and often counterproductive. He was a proponent of organizational stability yet considerable individual mobility, to develop people and their skills, but also sought the flexibility to redeploy people as needed in the case of changing priorities. These were not easy years during which to lead a government agency as, year after year, relentless cutbacks were whittling away at budgets.

In 1979, when he returned from his leave of absence in the United States, Dr. Fellegi's timing coincided with a major budget cut, and he found himself having to notify some of the staff who were to be laid off. This difficult experience had a profound and lasting impact on him, and he vowed that he would do his best to avoid ever having to do such a thing again. Fast-forward six years to when he was appointed Chief Statistician—this too was on the heels of a large budget cut. His first memo to all staff proposed that, if their jobs were at risk, but they were willing to be flexible, they would be redeployed into different jobs that had become vacant by attrition. They would also be offered the appropriate training and support required. Thus, while the specific work employees were doing may have been terminated, they would not be out of a job. This came to be known across the agency as Dr. Fellegi's "No-layoff Policy." It went a long way in contributing to a feeling of ease across the agency as it faced budget cuts, recessions, pay freezes, and a public service strike. It also made the agency more adaptable to change. Gone were the days when people joined the organization and retired 35 years later from the same area.

As would be the norm for years to come, the need for data was growing exponentially, but the budget for providing such data was shrinking from year to year. A five-year program was implemented in 1985/1986 to reduce spending, as the agency was required to cut annual costs by almost $26 million. With the no-layoff policy in place, although 586 positions were cut, the majority were dealt with through normal attrition. Affected permanent employees were redeployed to other positions, many with the opportunity to upgrade their skills and take on more challenging jobs. Major savings were also being realized in several areas, one of the most significant changes being the establishment of the Operations and Integration Division to centralize data collection operations in 1985, as noted in the previous chapter. The integration and standardization of operations improved efficiency and saved over 175 person-years by centralizing the support staff that mailed out, received, checked and coded the surveys for the agency and by making use of new technologies and improved methods. The new division afforded greater flexibility to the agency, not only because it had the capability to handle variable and peak work periods, but also because its capacity was not dedicated to any one product—such that processing plans for one survey could be substituted for those for another survey at short notice. There would be many other initiatives in the 1980s and 1990s aimed at changing the culture at the agency to encourage corporate-level thinking, but this was the first major one. It bears noting that, as with any major change in a large organization, this was not an easy shift. It was time-consuming and laborious, and was resisted by many line managers who had operated in their own way for decades. Clerical staff were reticent to leave their home divisions to join the new division and their managers did not want to lose them. Logistically establishing the new approach without disrupting ongoing programs was also quite the endeavour. In the end, while the path was difficult, the transition was ultimately successful and created one of the most important functions at the agency.

The other important element to the agency's flexibility and responsiveness in face of unremitting budget cuts was its popular corporate assignments program introduced under Dr. Wilk. The program was flourishing, with about 10% of all employees on a corporate assignment at any time. The program was so useful that 24 other government departments introduced similar programs. The program had been created as a response to the 1981-to-1982 recession and related wage controls, when the agency was coping with severe fiscal restraint. While programs were cut back, there continued to be demand for new information, and so having a pool of employees who were willing to take on new work was invaluable to the agency

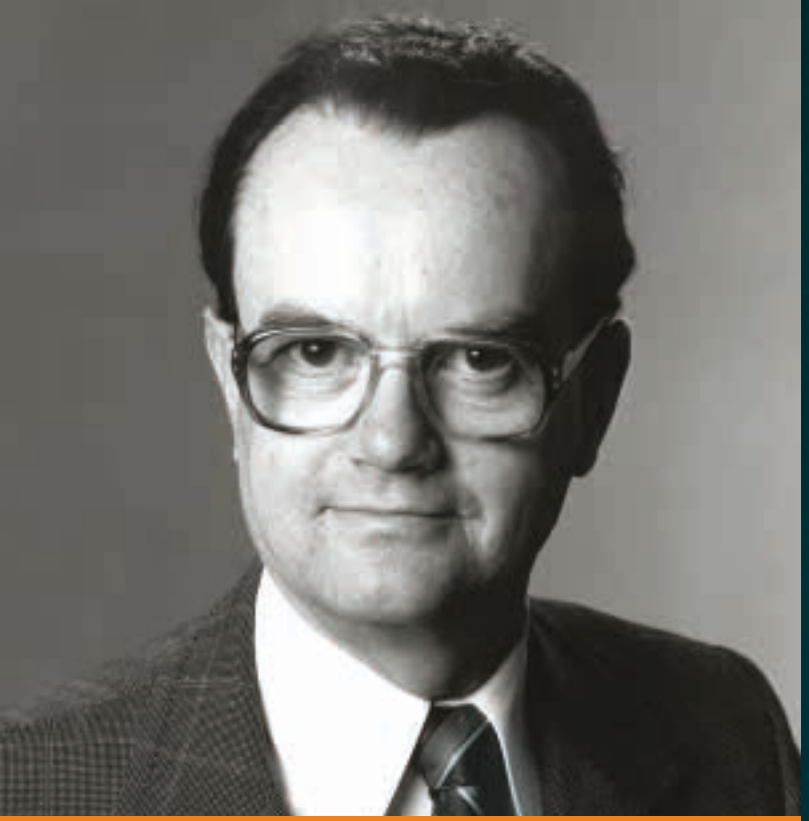
THE SHAPING OF A MAN WHO BEAT THE ODDS

Dr. Ivan Peter Fellegi was born in Szeged, Hungary, in 1935. He had an early start at mathematics, already knowing how to count to 1,000 by the time he was four years old. He had had a brain infection at 18 months, and his mother had been advised that, if he survived, he would be seriously impaired for the rest of his life. His family was obviously quite vigilant in the aftermath of such a diagnosis, and taught him by the age of four not only to count, but also to know all the European capitals, as well as to recite poetry. When Germany invaded Hungary, in March 1944, his father was taken to a concentration camp in Austria. The family was later also deported. They returned to Hungary in 1945, where four years later the family business (a stonework factory) was nationalized by the communist regime. Because of his "bourgeois" family origins, Dr. Fellegi was not allowed to go to high school in his home town and so left home at the age of 14 to enroll in high school in the capital of Budapest, where his origins would not be known. The same class-based wall was thrown up when it came time to enter university. However, there was an alternative: exceptional students were allowed university admission irrespective of their family background. All students placing in the top five in the country in national competitions were automatically admitted to university in the field in which they had competed. A poet at heart, Dr. Fellegi was encouraged by his professors to take this competition in Hungarian literature. Instead, he decided that the safest route would be to take his examination in mathematics, with the logic that mathematical answers could not be disputed, while literature was a good deal more subjective. He was successful, and was admitted to the mathematics faculty of Eötvös Loránd University (the University of Budapest).

He had just started his fourth year of studying mathematics, in 1956, when the Hungarian revolution broke out. His father convinced him to leave the country as his sister had done a few years earlier. However, by this time he would never have been legally allowed to do so, so his mother cleverly obtained a medical certificate indicating that he had tuberculosis, and he and a cousin were sent to a sanatorium conveniently located near the Austrian border. They arrived at the border town too late in the day to be admitted to the sanatorium and checked into a local hotel. They set out on foot later that night. It was not a simple trek — they stumbled upon a woodsman who took one look at them, and said that he did not want to know who they were or where they were going but that, if they were interested, there were Russians "that way" and there were no Russians "this way." They did not know when they crossed the border. They just knew that, as soon as they heard voices, their fate would be decided by the language they would hear spoken. When eventually they heard those fateful voices, the language was... German, and they were picked up by an Austrian border patrol.

Dr. Fellegi was reunited with his fiancée, Marika Gulyas, in Vienna, and together they left for Canada, arriving in the dead of winter in January 1957. Their first Canadian address was a prison in Montréal, which at the time was a temporary shelter for hundreds of Hungarian refugees. He later moved in with his sister who was studying medicine in Ottawa. She encouraged him to continue his studies and, within a few weeks, he was enrolled to enter second year of pre-medical studies in the fall at the University of Ottawa.

In the meantime, he sought employment and approached the Public Service Commission. As luck would have it, the public service was short of mathematicians, and as a result had relaxed the rule that only Canadian citizens could be hired by the government. By February, he had been hired by the Dominion Bureau of Statistics as a technical assistant. He soon realized a profound love for statistics, and approached Carleton University to ask whether he could pursue a master's



Dr. Ivan P. Fellegi,
Chief Statistician of Canada, 1985-2008

program there in statistical studies. Although the university did not yet have a master's program, it so happened that it was planning on setting one up. The university indicated that it would admit him if he could pass a comprehensive oral examination in mathematics to prove that his knowledge was equivalent to that acquired by a BSc at the university. He was successful and began taking night courses to receive his Master of Science by 1958, becoming the first Carleton University student to earn the honour. He wanted to pursue his PhD in statistics as well, but there was no professor of statistics at Carleton. The mathematics faculty arranged that a professor from Toronto—the esteemed Dr. Donald Alexander Stuart Fraser—would review his thesis when it was finished. Dr. Fellegi riskily pursued his thesis without having an advisor to guide him or even to initially approve his subject. The acknowledgement on his thesis, Sampling without Replacement with Probabilities Proportional to Size, indicates the pertinence of the subject to the Dominion Bureau of Statistics and that it arose in connection with the Labour Force Survey. In 1961, after his thesis was passed by Dr. Fraser and after two and a half hours of oral examination, which the mathematics faculty of the University of Ottawa also participated in administering, he became Carleton University's first PhD graduate.

At the Dominion Bureau of Statistics, he was appointed Chief of Sampling Research and Consultation in 1962, Director in 1965, Director General of Methodology and Systems in 1971, and Assistant Chief Statistician of the Statistical Services Field in 1973. He took a leave of absence from Statistics Canada from May 1978 to March 1979 to serve on President Carter's Commission on the Reorganization of the U.S. Statistical System. He returned to the agency as Assistant Chief Statistician of the Social Statistics Field in 1979, and in January 1984 was appointed as the agency's Deputy Chief Statistician. He served as Chief Statistician of Canada for 23 years, from 1985 to 2008. Upon his retirement, he had worked at the agency for 51 years. He was appointed Chief Statistician of Canada Emeritus in 2008 by Prime Minister Stephen Harper, and continues to return to his office twice a week to make himself available to the agency's employees for professional advice and personal counsel. He has served on the National Statistics Council for 31 years, starting as Chief Statistician and then as a member, since its first meeting in 1986. At the time of this publication, he has served the country's statistical system, and by extension his country, for 61 years.

In addition, Dr. Fellegi has served as President of the Statistical Society of Canada, the International Statistical Institute, and the International Association of Survey Statisticians. He holds six honorary doctorates and is the recipient of numerous medals, citations, and titles, including Fellow of the American Statistical Association, Honorary Member of the International Statistical Institute, Honorary Fellow of the Royal Statistical Society, and gold medalist of the Statistical Society of Canada. He was also awarded the Order of Canada in October 1992 by then-Governor General Ramon Hnatyshyn and was promoted to Officer in 1998. He received the Prime Minister's Outstanding Achievement Award and the Career Achievement Award in 2002. In 2004, he was awarded the Order of Merit of the Hungarian Republic.

A SHRINKING PUBLIC SECTOR

There was growing discontent in the public service as a result of wage freezes and the suspension of collective bargaining and arbitration rights. Wage controls had been applied in 1975 (for three years) and 1982 (for two years) in reaction to concerns about inflation and high interest rates. As well, since 1984, public service wage settlements had been lower than those in other sectors of the economy and below the rate of inflation. The majority Conservative government had been elected on a platform of reducing the size and role of government. From 1985 to 1990, the size of the public service was reduced by 15,000 (about 6%). A great number of Crown Corporations were either privatized or dissolved, further reducing the size of the public sector.

In 1991, the government indicated that, for one year, there would be no pay increases, and that for the next 3 years, increases of more than 3% would not be considered, unless the bargaining agents agreed to a reduction in employment levels. The reduction and the budgetary restraint were instituted to cope with the record-high fiscal deficits of the period, the high federal debt accumulated over the previous decade, and the high interest payments on that debt. The situation was unsustainable, and resolving it required in part that the size of the public sector be reduced.

The reaction was not favourable, and the Public Service Alliance of Canada, one of the country's largest national labour unions and the largest in the federal sector, called for its first-ever nation-wide general strike, which would become the largest single union strike in Canadian history, with about 100,000 federal employees taking part. The strike began in September 1991, and ended with special back-to-work legislation at the end of October. This legislation also extended all unsettled contracts for two years and provided for a wage freeze for 1991 and a salary increase of 3% for the next year.



In response to the special legislation, union leaders called upon their members to vote against the government in the next election—a notion that ran fundamentally counter to the political impartiality of public servants. In 1992, public service agreements were extended for two more years with no salary increases.

When the Liberal government was elected in 1993, it continued to chip away at the deficit, not only by freezing salaries and launching a program review to shrink the size of the government, but also by raising taxes and cutting transfers to the provinces.

as well as to those employees who would not lose their jobs. The program felt safe for both the employee and the employer as they had a guarantee that, if an assignment did not work out, employees could return to their previous jobs. In a period of low turnover and scarce promotions, lateral movement was also "the only game in town" for many desiring a change.

In a 1988 interview with SCAN, the employee newsletter, following a budget reduction exercise in which no jobs or programs were terminated, Dr. Fellegi stated, "Our no lay-off policy is not only humane, but I think it contributes to a more productive environment. If people feel reasonably secure in their jobs, they are more ready to take risks—and we want wise risk-taking."

In the midst of the 1990-to-1992 recession, and again facing massive budget reductions, Dr. Fellegi had three principles he wished the agency to follow. First, that everything could not be equally reduced—that some programs would need to be cut in their entirety. Second, that employees would not be laid off, and should feel secure in their jobs, but they should co-operate in redeployment to other jobs. Third, that a budget should be preserved for innovation and improvement. He felt that it was critical to sustain an innovative atmosphere in a period of declining resources, as programs could be re-instated relatively quickly, but that it was much harder to rekindle lost innovation. In fact, an emphasis on analysis and on research and development, even in the midst of successive budget cuts, would be one of the hallmarks of the Fellegi years at the agency.



The 1,000th employee sent on corporate assignment with a few members of the Corporate Assignment Division, 1988

IN A PERIOD OF LOW TURNOVER AND SCARCE PROMOTIONS, LATERAL MOVEMENT WAS ALSO "THE ONLY GAME IN TOWN" FOR MANY DESIRING A CHANGE



Nobel Laureate Wassily Leontief speaks to an overflow crowd in the R.H. Coats Conference Room about the effect of technological change on workers, 1985

EACH YEAR, ABOUT 15 LECTURES WERE PRESENTED, SOME BY EXPERTS FROM OUTSIDE THE AGENCY AND SOME BY STAFF MEMBERS

A strong and sustained focus on research and development

A new annual program of internal research sabbaticals was instigated, whereby mid-level employees could submit research proposals to undertake analytical work or research and development of special interest to Statistics Canada. Up to six employees annually whose proposals were accepted by a panel of experts would be given the opportunity to pursue that work and be relieved of their current duties for up to a year with full salary and benefits. At the end of their sabbaticals, they would return to their jobs, along with enhanced research and analytical skills, and the publishable results of their research. The completed works were refereed and published either as research monographs or in one of the agency's flagship journals, such as the *Canadian Economic Observer, Survey Methodology, Perspectives on Labour and Income* and *Canadian Social Trends.* Notably, these were also the years where institutional and peer reviews of analytical pieces became fundamental to the agency's research program.

A lecture series was established at the agency in the late 1980s, covering a number of diverse topics. The lecture series was initially implemented as the vehicle chosen to exemplify the spirit of Celebration 88, a federal program highlighting various achievements in the lead-up to the Olympics being held in Calgary in 1988. Each year, about 15 lectures were presented, some by experts from outside the agency and some by staff members. For example, leading demographer Ansley Coale spoke about population trends in China since 1950, and Professor Anthony Richmond from York University discussed the importance of basic research to public policy in his lecture on demographic research and public policy. Other well-known individuals who gave lectures at the agency included Nathan Keyfitz, Richard Ruggles, and Wassily Leontief (winner of the Nobel prize for economics in 1973). A special lecture on the history of the agency was given in 1988 by recently retired Assistant Chief Statistician David Worton, who was devoting his time to researching and writing a history of the agency, which would be published in 1998.

A renewed focus on analysis was also manifested in changes to the agency's releases in *The Daily*. The evolution toward publishing more analysis in *The Daily* was a collaborative corporate effort by managers and analysts from virtually every division. A senior editorial board was established in 1994 to improve the analytical quality of *The Daily* and transform it into a more readable product by emphasizing the storyline. Dr. Fellegi chaired the Board, which was composed of senior managers and analysts from across the agency. At each meeting, board members were assigned upcoming major releases to review. A few weeks later, the board would meet with analysts to discuss their recommendations. The board met weekly for about eight months. This allowed the board to define what constituted an effective release and helped author divisions redevelop their releases. At the end of the year, new guidelines were put in place for writing an effective release, and a course was offered on writing for *The Daily*. The course was also very much a success, with notable improvement in releases remarked upon by many regular subscribers.

Growth in international stature

During this time, a great deal of emphasis was placed on the agency's collaboration and cooperation at the international level. This was evidenced not only by the growing stature of the agency internationally, but also by the number of employees elected as members of prestigious international organizations, such as the International Statistical Institute.

A new program was implemented in 1988 to provide technical assistance on a cost recovery basis to other countries, with a view to supporting Canada's development co-operation program and enhancing international data comparability.

THE DATA LIBERATION INITIATIVE



In 1991, the coordinator of the Carleton University Library Data Centre, Wendy Watkins, was seconded to Statistics Canada. Ms. Watkins, along with key collaborators, such as Ernie Boyko from Statistics Canada and Paul Bernard from the Department of Sociology at the Université de Montréal, sought a way to provide easy and affordable access for universities to the wealth of microdata at Statistics Canada.

Since 1971, the agency had been producing anonymized public-use microdata files on a cost-recovery basis, with the data licensed in order to prevent redistribution. The access costs were prohibitive to students even before the increase in prices that took place in the 1980s, when cost recovery became one of the government-wide means of responding to budget pressures. Access to Canadian microdata was consequently severely restricted to those with well-funded research. As a consequence, most researchers relied on U.S. or international data for their research needs.

Over 20 organizations and government agencies met in the spring of 1993, and the decision ensued that a task force should be created to ensure the implementation of an initiative to increase microdata accessibility as soon as possible. The task force was facilitated by the Humanities and Social Sciences Federation of Canada, and had representation from university research and library communities, Statistics Canada, the Treasury Board Secretariat, and the Government's Library Depository Services Program. The task force developed a well-founded rationale, emphasizing the benefit to research, including to inform policy making and public debate, and the importance of using Canadian data, as opposed to outdated or foreign data sources, which were much less expensive at the time. In 1995, Treasury Board made the decision to support the initiative and decided that a consortium of government agencies and departments would share the cost of the initiative. Seven organizations, including Statistics Canada and the Social Sciences and Humanities Research Council of Canada, agreed to help fund the initiative, which would start as a 5-year pilot project in early 1996. By 1997, 50 universities were participating and accessing Canadian data for research. While the initiative initially focused on public-use microdata files, it would later encompass all publicly available data.

The Data Liberation Initiative was an important academic partnership for Statistics Canada, and its benefits have been far-reaching. It has helped students build strong quantitative data skills, promoted the use of Canadian data, and increased the quality and documentation of agency products. In fact, in its first year, the major U.S. academic data warehouse reported a 50% reduction in access to U.S. data files by Canadian university researchers. As a result of the initiative, Canadians have become better informed about social and economic issues through greater research and analysis. The initiative also laid the foundation for research data centres, which would be proposed in 1998 and established a few years later (see "The dawn of research data centres" in Chapter 5).

Dr. Fellegi attached a great deal of importance to international collaboration, and would summarize this emphasis as being important for three reasons. First and foremost, it was important for purposes of learning. As a centralized statistical agency, Statistics Canada had no true peer within Canada—so for its employees to be exposed to knowledgeable discussion or critique to inform their professional development, they needed to work with other statistical organizations around the world. The second reason was to broaden staff's perspective by encouraging them to benchmark themselves to others. The third reason was that he wanted the agency to be prominent internationally as he felt that international recognition was crucial to positive perception here in Canada. At the time, international reputation was of great importance to the country.

The other side to the coin was that he felt it was the agency's duty to share the knowledge and experience it gained: not only to collaborate and offer assistance, but also to solidify the agency's knowledge and confidence. In explaining that old adage that in order to best understand a subject one should try to teach it, he would say to SCAN that "When you have to give a paper to an international body, you had better know what you are talking about. I find our international work an incredibly useful stimulus to clarify our own thinking."

Canada was elected to the United Nations Statistical Commission, the highest decision-



Delegates from about 10 sub-Saharan African countries participated in a six-week course on census sampling in Ottawa, 1988

THE AGENCY FEATURES IN THE *CANADIAN JOURNAL OF STATISTICS*

In 1988, the Statistical Society of Canada commended the analytical work coming out of the agency by producing a special issue of the *Canadian Journal of Statistics* focusing entirely on work done by Statistics Canada. The issue, which was published in the fall of 1988, was written and edited by statisticians and social scientists associated with Statistics Canada, highlighting the diversity and calibre of its methodological and analytical work. The next year, the agency hosted the Statistical Society of Canada for its annual meeting.

making body for international statistical activities, in 1988. The Commission consisted of chief statisticians from member states from around the world, and oversees the work of the United Nations Statistics Division. The 24 member countries are elected by the United Nations Economic and Social Council on the basis of equitable geographical distribution, with a term of office of 4 years. Canada was chair of the Commission for the first three sessions, in 1947 and 1948. It has been elected to the commission six more times as of the publication of this piece (1951-to-1959, 1962-to-1969, 1974-to-1981, 1989-to-1992, 2006-to-2009, and 2018-to-2021).

Technical assistance was also a priority for the Canadian government. In response to a request from the United Nations Statistical Office, a six-week course on census sampling was held in Ottawa in 1988, attended by delegates from about 10 sub-Saharan African countries. The agency also conducted a mission to Uganda at the request of the Canadian International Development Agency and the World Bank to assess the possibility of Statistics Canada's involvement in the rehabilitation of their statistics departments. Technical assistance was also provided to Indonesia in the area of environment statistics, and short-term training was given at the agency for statisticians from Indonesia, Egypt and Malaysia.

Starting in 1989/1990, Statistics Canada participated in a major technical assistance program spearheaded by the World Bank, with funding from CIDA, to gradually develop a database to track the social impacts of structural economic adjustments in sub-Saharan Africa. The agency helped design questionnaires, conducted training programs, and got survey programs off the ground.

In 1989, the Department of External Affairs suggested and funded a mission to provide technical assistance on statistical matters to central eastern European countries. A delegation was sent to Hungary to assess that country's most urgent statistical needs, and seminars were prepared on topics such as the legal foundations of a statistical system, the management of statistical offices, ensuring the relevance of statistical products, and respondent relations. For the first time, in 1990/1991, assistance was provided to Eastern Europe, and the agency advised Hungarian officials on the management policies and the legal basis of a national statistical system, as well as on the construction of a register of businesses. Assistance was also provided in setting up a monthly retail trade survey, which would become the country's first modern, sample-based survey.

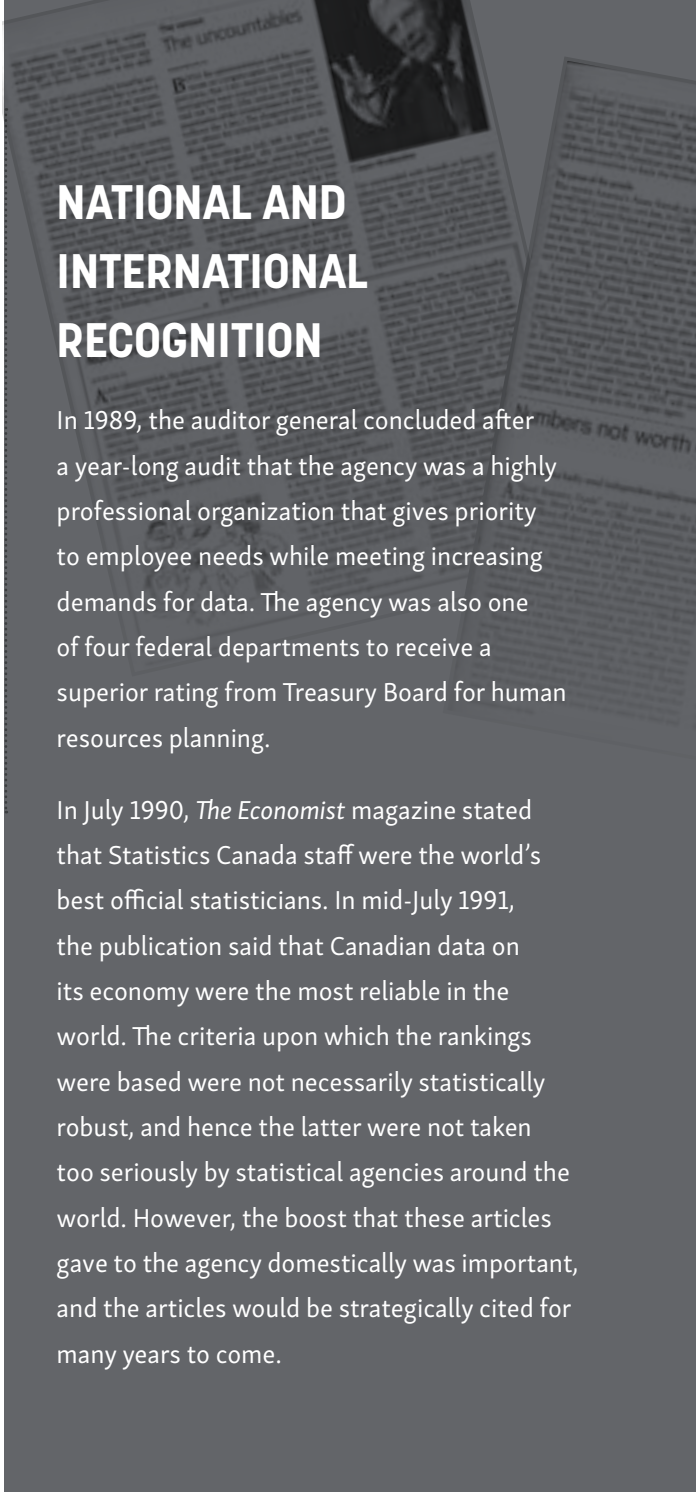
Other countries receiving technical assistance included the former Czechoslovakia, Senegal, Kenya, Pakistan, Sri Lanka, and Uganda.

Barbara Clift, who had played a fundamental role in designing and creating Canada's income and expenditure accounts, spent six months in Uganda in 1989/1990, single-handedly developing a set of production accounts for the country.

In 1991, the agency also participated in the first of what was to be a series of meetings aimed at co-ordinating the World Statistical System. This was a trilateral initiative involving Eurostat, the European Community's Statistical Office, and the American and Canadian national statistical offices to collaborate in helping Eastern European countries adapt their statistical systems to a market economy.

The agency also hosted the Economic Commission for Europe seminar in 1990 on the implications of the changing population age structure in industrialized countries.

A bilateral exchange program was initiated with France, Australia and the United Kingdom to develop closer relationships and exchange knowledge. A member of France's *Institut national de la statistique et des études économiques* came to the agency in 1991 to serve as director of the agency's prices division, while Statistics Canada undertook assignment there. Statistics Canada managers also undertook assignments in Australia and the United Kingdom.



NATIONAL AND INTERNATIONAL RECOGNITION

In 1989, the auditor general concluded after a year-long audit that the agency was a highly professional organization that gives priority to employee needs while meeting increasing demands for data. The agency was also one of four federal departments to receive a superior rating from Treasury Board for human resources planning.

In July 1990, *The Economist* magazine stated that Statistics Canada staff were the world's best official statisticians. In mid-July 1991, the publication said that Canadian data on its economy were the most reliable in the world. The criteria upon which the rankings were based were not necessarily statistically robust, and hence the latter were not taken too seriously by statistical agencies around the world. However, the boost that these articles gave to the agency domestically was important, and the articles would be strategically cited for many years to come.

ORGANIZATIONAL CHANGES

The following individuals comprised the team of assistant chief statisticians at the end of 1985: Bruce Petrie, Social, Institutions and Labour Statistics; Gordon Brackstone, Informatics and Methodology; Guy Labossière, Management Services; David Worton, Special Assignments; Yvon Fortin, Communications and Operations; Jacob Ryten, Business and Trade Statistics; and Stewart Wells, National Accounts and Analytical Studies.

In October 1985, it was announced that Mr. Harry John Hodder would fill the role of Deputy Chief Statistician. Mr. Hodder had begun his career with the federal government at the Privy Council in 1954, and had served in a number of capacities with the Canadian International Development Agency, Manpower and Immigration, and the Inter-American Development Bank. He had come to Statistics Canada in November 1984 as Assistant Chief Statistician of Business and Trade Statistics. He unfortunately passed away quite suddenly in February 1986. The position of Deputy Chief Statistician remained vacant for a year, until Dr. Fellegi felt that it was no longer required. To this day, there has not been another Deputy Chief Statistician.

Regional offices restructure

In the late 1980s, the regional offices were handling about 400,000 telephone inquiries each year, and carrying out about $1.5 million in custom work for data users. The data collection function was also being increasingly regionalized, as this was found to improve response rates and timeliness. As a result, the sizes of survey samples could be



Senior management team under Chief Statistician Ivan P. Fellegi, from left to right: Bruce Petrie, Harry Hodder, Guy Labossière, David Worton, Yvon Fortin, Jacob Ryten and Stewart Wells. Absent: Gordon Brackstone.

decreased, reducing the number of businesses and organizations needing to participate in surveys. From 1984 to 1989, 39 surveys were regionalized. By 1987/1988, the regional offices were responsible for conducting 100 surveys (up from about 75 in 1985).

The number of regional offices expanded to 10 in 1987 with the addition of the Calgary regional office. In 1988, a study was conducted to assess opportunities to modernize the collection operations of the regional offices, initiated as a result of obsolete mini-computers, the recent successful use of computer-assisted telephone interviewing (CATI), and a growing need to respond quickly to information requests. Shortly thereafter, 1989 would mark the advent of the first collective agreement for interviewers and senior interviewers working in the regional offices (about 1,200 interviewers). Until 1987, the regions were using hand-posted ledgers for their accounting, and forwarding them to Ottawa each month. The Financial Services Division at headquarters had been using an automated accounting system called FINCON for fiscal transactions since 1982. In 1987, this automated system was extended to all the regions.

CATI was first tested in Halifax in March 1986 and, after a few modifications, was implemented across the country in all regional offices. It was a new and exciting development for the agency, as it bypassed all manual processes in data collection, including recording, preliminary editing, and coding. The interviewers were retrained and quickly adapted to the new technology, even though, for many, this was their first time working on computers. Each trainee received a self-study package one week before classroom training, which took place over three days.

Entering the data directly into computers instead of onto a paper form allowed for online edits as soon as the data were entered, prompting immediate resolution of any issues with the respondent. It also allowed for sample file maintenance: the interviewers could update company names, addresses or contacts directly to keep the mailing list clean. The response rates increased by 20% and the per-unit cost of collection dropped by about 27% for the Annual Survey of Manufactures, which was used as a CATI pilot for economic surveys. The CATI software used came from the U.S. Bureau of the Census, and had already been successfully used by the Labour Force Survey as the first CATI pilot for a social survey, in March 1993.



This team of students, led by the Operations Sub-division was an important part of the successful CATI pilot project, 1988

THE NATIONAL STATISTICS COUNCIL AS A GUIDANCE MECHANISM

A series of task forces were established by Prime Minister Mulroney in September 1984 to target better service to the public and improved management of government programs. These were led by Deputy Prime Minister, the Honourable Erik Nielsen, and hence became known as the "Nielsen Task Forces." Program reviews were carried out by study teams composed of a balance of private- and public-sector specialists with each team responsible for the review of a "family" of programs. Assistant Chief Statistician David Worton was on the Major Surveys Study team, which reviewed the major national survey programs and related information dissemination systems. To the relief of the agency, their assessment would find that "the challenge for government is to organize its information so that it meets its own needs effectively and makes it easily and cheaply accessible to all users. The socio-economic surveys, through Statistics Canada handle this task effectively...It [Statistics Canada] stands as a model for all federal government survey activity because it works well....It is a principal assessment that Statistics Canada, having been pressured since 1978 to develop proper management, has responded and is now a tightly managed agency of government." After a difficult decade ripe with negative reviews, many employees and managers breathed a collective sigh of relief.

In May 1985, the *Initial Results from the Ministerial Task Force on Program Review* was published, which included a recommendation to increase consultation on Statistics Canada programs through the establishment of a National Statistics Council, which would advise the Chief Statistician in setting priorities and rationalizing Statistics Canada programs. The Council was established by a Cabinet decision in June of 1985. In a memorandum dated September 13, 1985, to the Honourable Stewart McInnes, the Minister Responsible for Statistics Canada at the time, the Chief Statistician, Dr. Fellegi, presented a draft of the terms of reference for the Council, including organizational details, and a list of possible nominees. The document contained a series of recommendations, including that each member should serve as an individual rather than as the formal representative of any organization or interest group. He also noted that it would benefit the knowledge base of the Council as well as the needed linkage between it and the specific advisory committees of the agency if the Council included those committee chairpersons. Later memos from the Chief Statistician would propose chairpersons and identify the active advisory committees with chairs and alternates. On November 21, 1985, the Minister responded to the Chief Statistician with a number of decisions on the proposed terms of reference, including that the council consist of approximately 30 members, that it meet at least once a year, that members be

THE NATIONAL STATISTICS COUNCIL WAS INSTRUMENTAL IN CONVEYING THE MESSAGE THAT THE NEED FOR DATA AT THE TIME WAS CRITICAL



The inaugural members of the National Statistics Council, 1986

appointed for 3-year renewable terms, and that they be reimbursed for travel and other actual costs but that they not be remunerated for their time. Later correspondence from the Minister formally named the individual members of the inaugural Council, and identified the Chair as Dr. Thomas H.B. Symons, Founding President of Trent University, in Peterborough, Ontario. Dr. Symons would go on to Chair the Council for almost 20 years. The council first met in October 1986, and would meet twice a year thereafter, providing expert advice to four chief statisticians to date. Through the prestige of its members, and through precedent, the Council evolved into a very influential defender of the objectivity, integrity, and long-term soundness of Canada's national statistical system.

In fact, in the midst of the budget cuts in the early 1990s, the National Statistics Council was instrumental in conveying the message that the need for data at the time was critical. When the agency's proposal for relief from budget cuts went to Cabinet, it had the support of federal and provincial deputy ministers, and *The Economist* had just published that Statistics Canada was considered the best statistical agency in the world. As a result, about one-third of the amount of the budget cuts was restored to the agency.

By 1993, interviewers were also testing handheld computers in the field. This was the introduction of computer-assisted personal interviewing (CAPI), which would turn out to be a major challenge. Apparently anything that could go wrong at the outset did, from battery life issues, frozen screens or screens that were hard to read in bright light to painstakingly slow processing speeds. Tenacity paid off, however, as eventually, hand-held computers for the Labour Force Survey would save $1.7 million per year.

The Collection Operations Branch had also recently implemented a new service called "Fast Track Surveys" for some of the survey work that was new to the agency or to the branch. The development, collection and processing for these particular surveys, of which there were about 10 per year, ranged from a few weeks to a maximum of 6 months.

MANAGEMENT INITIATIVES

From the rigid compartmentalization of the agency at the end of the 1970s, the agency was moving into an era where management initiatives were increasingly owned by all employees— they were becoming entrenched in the culture of the organization. These included corporate assignments, open lines of communication, employee opinion surveys, university recruitment, mentoring, and a corporate training program.

Open lines of communication

Dr. Fellegi began a practice of inviting yearly interviews with the employee newspaper, SCAN. These yearly check-ins were published as a special issue and covered much of the accomplishments of the agency over the year, as well as the context in which the agency was operating. State of the Union addresses were also instituted as his opportunity to communicate with all staff members (through his address to senior managers in the Simon Goldberg conference room and the subsequent publication of the material in the employee magazine—SCAN and, later, *@StatCan*), and relay not only the major accomplishments of the previous year, but also the upcoming challenges to meet for the next.



The Chief Statistician of Canada, Ivan P. Fellegi, interviewed by the Editor in Chief of SCAN, 1986

Statistics Canada's Policy Committee, which had been convened by Dr. Wilk, met weekly. The consensus approach to decision making (as opposed to one-on-one decisions) with all assistant chief statisticians present ensured that all variables from across the agency were taken into account. It was also another way to keep channels of communication open, as all assistant chief statisticians would brief their own managers the next day to ensure that all of senior management was aware not only of the decisions made, but also of the reasons behind them.

Communication was also bolstered through the implementation of employee opinion surveys. These were conducted every three years with anonymous participation to ensure all opinions

could be voiced. Directors were required to report and discuss the results from their divisions with their employees, to compare them with those for other areas of the agency, and to establish concrete goals for improvement by the next round of the survey. In fact, an electronic information network was first proposed at the agency after the 1991 employee opinion survey showed a widespread desire for better internal communications and easier access to information. The Internal Communications Network became operational at headquarters in April 1994 and in the regions that October, and quickly became a pillar in the agency's internal communications program.

Two other initiatives born of the employee opinion surveys were targeted at the career aspirations of employees. The first corporate initiative was skip-level interviews, which were introduced in 1993. These allowed employees to discuss medium-term career aspirations and related training needs with their supervisor's supervisor. The thought was that, while direct supervisors might have a conflict of interest as they may be reticent to lose their best people to career opportunities elsewhere, skip-level supervisors would be more likely to have a broader perspective and a more objective view. They would also be able to advise employees about opportunities elsewhere in the agency as well as provide guidance on longer-term career issues. The second corporate initiative stemming from the surveys was to allow any employee who had been in the same position for four years or more the opportunity to apply for a corporate assignment without their supervisor's permission. Again, this was to balance career advancement with operational needs.

In 1991, Treasury Board set up an interdepartmental working group to identify the best career development approaches, as part of a search for career development models for the public service. After reviewing over 60 private- and public-sector organizations,

BEST EMPLOYEE NEWSPAPER

The Statistics Canada employee newspaper, SCAN, won two awards from associations of communications professionals in the mid-1980s, including first prize in the annual awards program of the Information Services Institute, awarding it the honour of best employee newspaper in the federal government in 1985. The Institute was a voluntary professional association of government employees engaged in the development and maintenance of high professional standards in the practice of public information, public relations and communications. In 1986, SCAN earned the Award of Excellence from the International Association of Business Communicators, who cited the newspaper as the best tabloid in the public and private sectors.



SCAN Editor in Chief receiving the IABC award, 1986



BUTTING OUT

In May 1988, a private members bill, the *Non-smokers' Health Act* (Bill C-204) was passed, which banned smoking in workplaces under federal jurisdiction. Statistics Canada had already banned smoking on its premises two years earlier, after a smoking survey showed that an overwhelming majority of agency employees were concerned about the hazards of tobacco smoke. A message sent to all employees from Dr. Fellegi in June 1986 indicated that smoking would be banned in the three Statistics Canada buildings by October of that year, with the exception of separately ventilated areas in the cafeterias. Courses were also organized in conjunction with Health and Welfare Canada to assist people who wanted to quit smoking altogether.

they chose three—two from the private sector (IBM and Chevron) and one from the public sector (Statistics Canada).

University recruitment to attract employees

At this time, the agency established a corporate university recruitment campaign to attract new employees. While university graduates were hired previously, it had been with little corporate support. Previously, a manager would choose candidates from a Public Service Commission list, invite them to an interview, select successful candidates, and hire them directly. The new corporate program would see the recruits hired by a team to work more generally for Statistics Canada rather than for a particular manager. The Economics, Sociology and Statistics stream (ES) recruitment program was launched in the summer of 1989. All entry-level employees in the ES stream were recruited by a single team of directors that combed universities seeking out the best candidates from across the country. The team would try to hire the best graduating students in December and January, when they were looking for jobs in the largest numbers. For the first 24 months, recruits were given training and a series of corporate assignments engineered to expose them to various facets of work at the agency. They were also assigned mentors to help them acquire a broad corporate perspective.

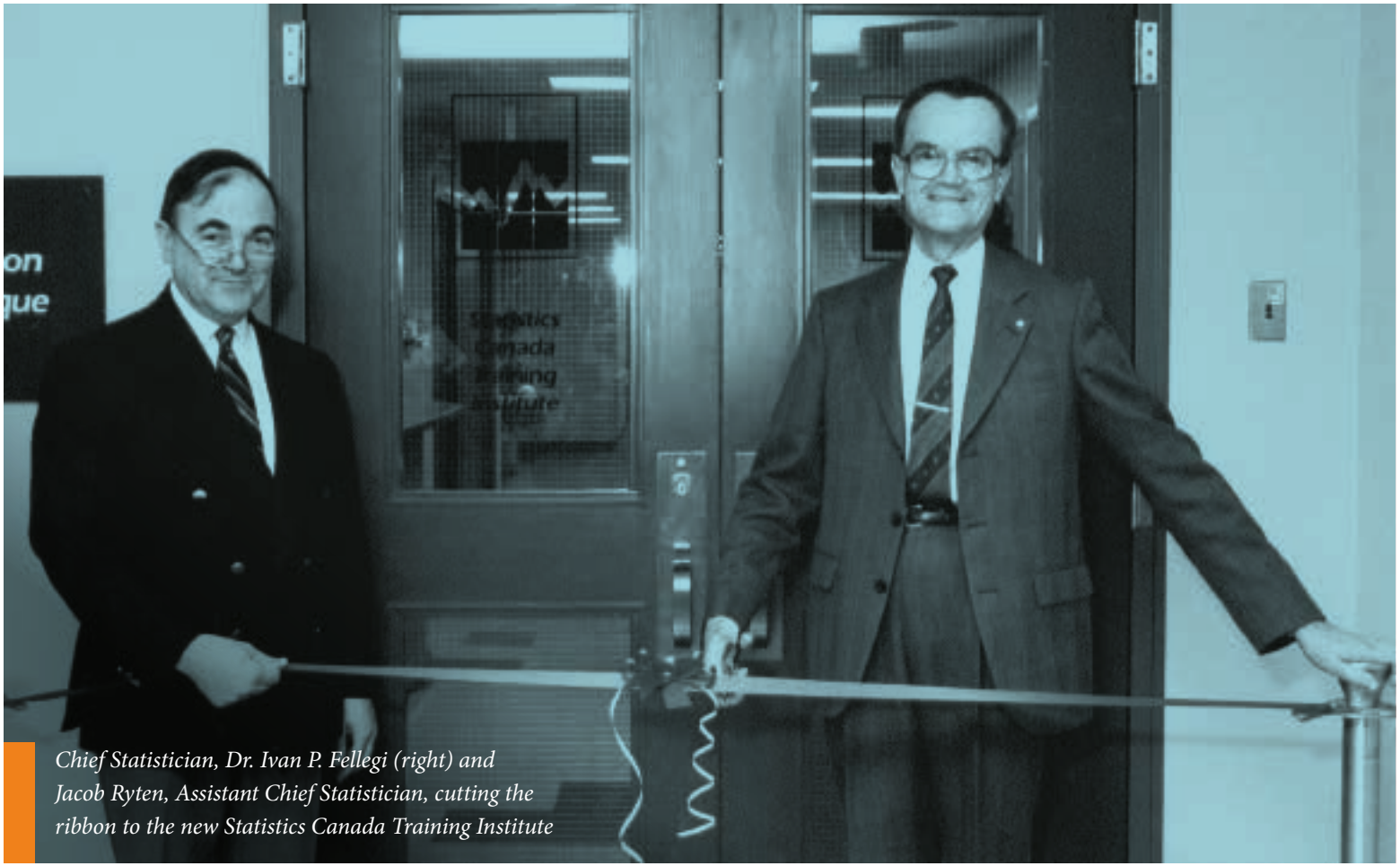
There was also a drive to increase the amount of part-time work done at the agency, not only because it was felt to provide value for money, but also to foster balance with other life priorities. All directors were urged to increase opportunities for part-time work in all occupational groups in their divisions.

Training

The Survey Skills Development Course was introduced as a pilot project in 1990. A similar course had been offered by the U.S. Census Bureau, and a group of employees (ES recruits) from Statistics Canada had been sent there to take the course in order to investigate its applicability to the Canadian context. Hank Hoffman adapted the course to the Canadian context and to the approaches used at Statistics Canada. The first course took place in 1994, a year after the creation of the Statistics Canada Training Institute. The six-week course for new employees also had a slightly modified version targeted at existing employees. A Survey Support Certificate program was also offered, which provided 3 weeks of training for 250 survey support staff each year. Mr. Hoffman was honoured as the agency's employee of the year

in 1993/1994 for his outstanding contributions to the training and career development of agency employees.

A pilot program in 1991 involved up to four students identified by Carleton University to work on research projects of interest to Statistics Canada. The students were each supervised by an agency employee. A year later, agreements were put in place with Carleton University and the University of Ottawa to offer certificate programs in economics and demographic studies to agency employees. In exchange for guaranteeing a certain enrolment and having Statistics Canada staff teach parts of the course, the universities adjusted some courses to meet the agency's needs. In the regions, several pilot projects were also initiated with local universities, to see what kinds of cooperative programs could be implemented. Although the certificate programs had their place, they were ultimately not as successful as other training initiatives.



Chief Statistician, Dr. Ivan P. Fellegi (right) and Jacob Ryten, Assistant Chief Statistician, cutting the ribbon to the new Statistics Canada Training Institute

INTEGRATED AND CENTRALIZED PLANNING

The regular planning process that had been established under Dr. Wilk continued, and each year the agency would systematically assess its user needs and the budgetary parameters within which it operated. Priorities could therefore be established for the coming years, and resource needs anticipated. Senior management also identified resource savings of at least 1% per year to liberate funds for other needed investments, such as infrastructure investments, new projects, or unexpected budgetary requirements. Each division was expected to become permanently more efficient by 1% each year. The fields could request up-front investments for initiatives, which might help generate such savings, but the investments needed to be "paid back" in three years or less through ongoing savings. The new fund was referred to as the Strategic Investment Opportunity initiative, and divisions were encouraged to make proposals to draw from it. The fund helped the agency expand its analytic capacity, kick-start the renovation of the Business Register, and modernize and streamline the agency's collection activities.

One of the new fundamental culture changes in 1991 at the agency was the introduction of internal cost recovery for many services. For example, the Main Computer Centre would start the year with no budget. Its costs would be covered by the purchase of services by user programs during the year. The aim was to give all program managers financial control over all the resources used by their individual programs, including those needed for collection, mailing, head office operations, telephones, and computing. This made the full costs of programs visible, and allowed

AUTOMATED TIME REPORTING

In the 1960s, employees were required to sign an attendance sheet at the beginning and end of each day, which was announced with ringing bells. The first morning bell rang at 8:00 a.m. as a warning to sign in and prepare for work. The second bell rang at 8:07, and the sign-in sheets were promptly removed. Attendance sheets were again placed at the exits when the bells rang again at the end of the day.

Also in the 1960s, banks were open only from 10 a.m. to 3 p.m. As a result, employees were allowed to take an extra-long lunch period on pay days. With the Paycheque cashing service: Two armed guards arrived on scene with satchels of money. They stacked piles in various denominations, and hordes of employees would arrive, paycheques in hand. For a $2 fee, you could avoid the trip to the bank.

A new Automated Time Reporting System was implemented at the agency in 1990, saving the completion of about 200,000 handwritten time-reporting forms each year. Two years later, it also allowed employees and supervisors ready access to their leave balances, eliminating another 80,000 forms annually.



Administrative officers preparing financial plans, 1991

program managers, over time, to make the most efficient use of these resources within their total budgets.

At the same time this process would provide service areas with real feedback on service demand so that they could adjust their mix and levels of service provided from one year to the next. In this way, for example, capital costs associated with the agency's computing infrastructure were self-financed through computing costs within program budgets and did not require separate external budgetary submissions. Some managers saw internal cost recovery as a mixed blessing. While it helped them familiarize themselves with the costs of all aspects of their programs, it tied their hands a bit in terms of trading off one cost against another.



Employees in the publications warehouse, 1985

COMMUNICATIONS AND MARKETING

After consultations with journalists, the two major frontline publications were reviewed and redesigned in 1986: *The Daily* and the weekly *Infomat*. The revised publications would better present information to make it more understandable and more user-friendly: they were said to be "humanized." *The Daily* was modified to highlight the most significant series and place greater emphasis on analysis. *Infomat* was modified to better display graphics and to include brief analyses of the major social and economic releases of the week.

A new magazine-style quarterly publication on social issues, *Canadian Social Trends*, was also released in 1986. This compendium presented articles on social issues from a statistical perspective along with key social indicators. It rapidly became one of the agency's bestselling flagship publications, with about 3,500 subscribers by 1987 and 5,000 two years later. Planning was also under way for a new economic flagship publication—the monthly *Canadian Economic Observer*. First released in 1988, this publication contained an analytical summary of current economic conditions, a feature article, a digest of changes in statistical programs, methodologies and services, as well as statistical tables of key economic variables.

These two publications were followed a year later, in 1989, by *Perspectives on Labour and Income*, a quarterly review in the same magazine format. It focused on contemporary labour and income issues, while featuring new developments in surveys and methodology.

The shift toward user-centric publication was continuing, and this included a growing emphasis on publishing by topic rather than by survey. As a result, the agency was producing more and more compendia of information on a given industry, sector, or policy issue into one publication. While these compendia were labour-intensive to produce, they were very well received by data users. Examples included *Shipping in Canada, Health Indicators, Focus on Culture, Youth in Canada,* the *Family in Canada,* and *Women in Canada: A Gender-based Statistical Report.*

Available exclusively to educational institutions by subscription, the package included a tutorial, a teacher's handbook, a guide to the data, and



Employees doing a demo of Telichart, 1985

INSIDE STATSCAN

Statistics Canada's television debut happened in 1988, when it began to contribute a program called "Inside StatsCan" to an Ottawa Cablevision show that was aired each Wednesday night. The show had a dual purpose: it introduced viewers to the agency's products, and it provided agency employees with media training. Each edition involved a ten-minute segment with a representative from the agency—for example, there were shows about User Advisory Services, the Canadian Centre for Justice Statistics, and Geocartographics. In December 1988, a one- hour special focusing on various products to help small businesses get off the ground was broadcast.

An electronic data package for the education market called E-Stat, essentially a "CANSIM for schools," was launched. The E-stat project began in 1985, when Brian Burnham, a York Region Board of Education teacher, heard the Chief Statistician talk about Telichart at a meeting of the National Advisory Committee on Education Statistics. He knew staff at Richmond Hill High School had been exploring ways of expanding student use of computers and thought that the Telichart system could be a good way to combine current Canadian data with computer technology for his business course. In 1987, plans had been solidified for a pilot study, the necessary links were set up at the school, and the school staff were trained. After it showed great success, it was installed in 40 schools around the country in a wider pilot project, and it was hoped that those 40 schools would be ambassadors to spread the word to the rest of the country's schools. It would prove to be immensely successful, and in November 1989, the Policy Committee was given a demonstration of assignments carried out by students using the system.



Ottawa Cablevision thanked Julie McSkimming for her contribution to Inside StatsCan with a VAMPIE Volunteer Award, 1989

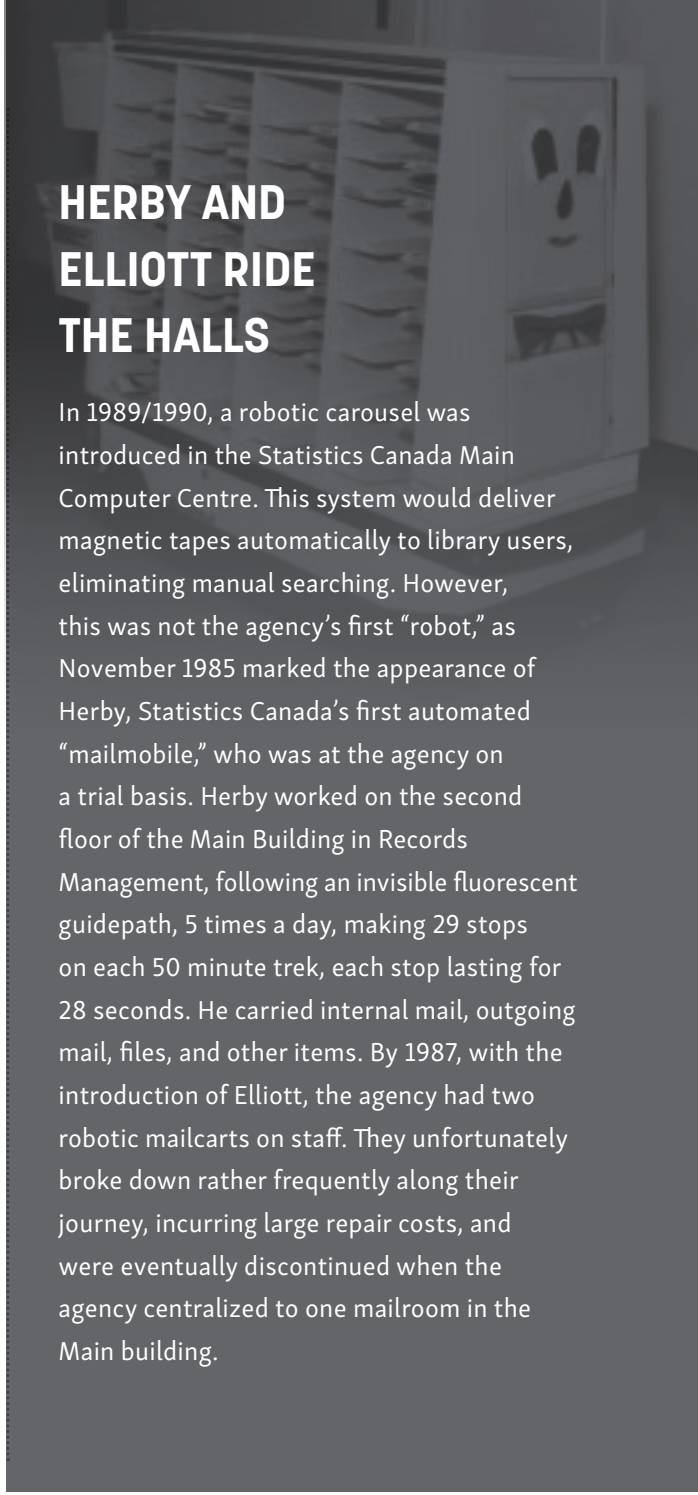
classroom activities designed by educators. The data initially included were a selection of time series relevant to schools. Later, census data were added, ranging from Jean Talon's Census of New France in 1666 to the latest census information. While the target audience was originally meant to be the secondary school population, it proved useful for all students from senior elementary to postsecondary levels. Schools initially accessed the CANSIM data by modem (to an Ottawa-based computer) using TELIDON and TELICHART technologies. With the advent of CD-ROM technology, a CD of E-Stat was made available in 1992. Telichart allowed the plotting and overlaying of plotted data on different scales to allow students to establish relationships between different phenomena. The goal was to make working with data and learning about Canada easy and fun, and to develop computer literacy skills and analytic abilities. The side benefit was that a generation of Canadians would grow up having relied upon Canada's official data as a basic resource.

Statistics Canada launched its first CD-ROM data product in 1989 and, with the launch of electronic products, felt it had to confront the issue of licensing. From the outset, this was a controversial issue. It was believed that the agency's markets would erode unless it asserted its intellectual property rights and controlled or received compensation for further distribution of its information. Without markets, the agency would not be able to sustain its new products — so it began to license "defensively"— and the practice then morphed into an important revenue source for the cash-strapped agency. Ultimately, the high prices of products likely limited their more widespread use. The agency also launched a "national accounts on diskette" program, which was fairly successful until the technology became more or less obsolete with the arrival of the Internet.

The Internet emerges as a new tool

Computers were becoming much more common—by 1990, there was a computer for almost every employee. In fact, the entire headquarters complex had to be rewired as the use of local and broader networks was increasing. All voice and data cabling in headquarters was replaced, as the capacity was barely enough to meet current requirements of the time. When completed, the network capacity was 20-fold what it had been, and would be vastly more reliable.

In 1986, the first local area network was installed as a computer-linking system to improve



HERBY AND ELLIOTT RIDE THE HALLS

In 1989/1990, a robotic carousel was introduced in the Statistics Canada Main Computer Centre. This system would deliver magnetic tapes automatically to library users, eliminating manual searching. However, this was not the agency's first "robot," as November 1985 marked the appearance of Herby, Statistics Canada's first automated "mailmobile," who was at the agency on a trial basis. Herby worked on the second floor of the Main Building in Records Management, following an invisible fluorescent guidepath, 5 times a day, making 29 stops on each 50 minute trek, each stop lasting for 28 seconds. He carried internal mail, outgoing mail, files, and other items. By 1987, with the introduction of Elliott, the agency had two robotic mailcarts on staff. They unfortunately broke down rather frequently along their journey, incurring large repair costs, and were eventually discontinued when the agency centralized to one mailroom in the Main building.



The early days of personal computers, circa 1990

the speed and efficiency of communication and work flow. By June 1994, the agency had developed two distinct computer networks to separate the confidential data on one network from the public data on the other. This allowed users direct access to public databases while protecting confidential data from unauthorized access.

The topic of one of the agency's lecture series presentations in 1993 was the Internet, which was just emerging. A SCAN article covering the lecture explained that: "A simple telnet command allows a user to log on to any machine with a public access catalogue…. But knowing what you want is only part of the game - finding it is another matter entirely." These were obviously before the days of today's strong search engines! A later SCAN article, published in 1994, described the Internet to agency employees as "a communications system, research tool, entertainment package and discussion forum rolled into one."

In 1994, there were two Internet "nodes," the first being the "STCINET" node, which let users perform remote log-ons, exchange email, and transfer electronic files around the world. The second node was called "Talon," which informed the Internet community about the agency and its products and services. Any information or data that would not otherwise generate revenue (such as research papers) were eligible for placement on Talon, such as information about the agency, the classification of statistics, and how to find and order publications. Issues of *The Daily* were also available in keyword searchable format.

Statistics Canada officially launched its website ("StatsCan Online") in March 1995, designed to deliver text, tables and graphics. It provided access to *The Daily* each morning at 8:30, as well as access to the CANSIM database, the international trade database called Trade



Statistics Cananada website, 1995

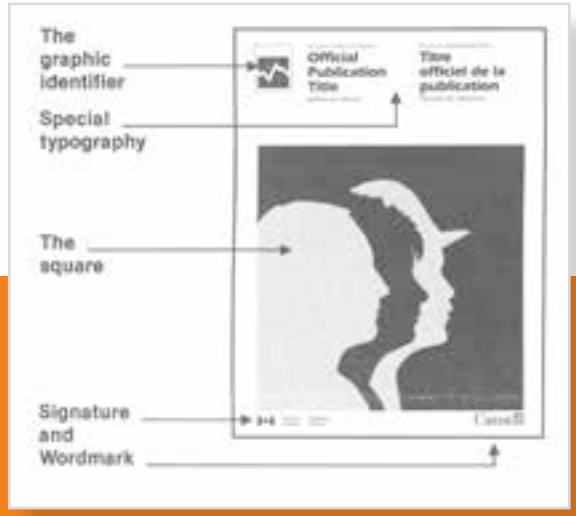
Information and Enquiry Retrieval System (TIERS), and 40 virtual publications. After 71 years, the last paper version of *The Daily*, first published in 1932, would be published in 2003.

A stronger corporate identity

Since the Treasury Board's 1985 cost-recovery directive, which required a move toward full cost recovery as part of a government-wide strategy to reduce deficits, the agency has been developing more responsive products, aggressive marketing, and attractive packaging. The idea of establishing a new, stronger corporate identity was raised at a management conference in Cornwall in 1988. As a result, a new corporate identity was launched in March 1990. The new look for publications used four main elements—a graphic identifier (a little black logo of a graph), a square grid area (where an image would be displayed), standard typography (a typeface called ERAS), and standard positioning of the Federal Identity Program components (the Statistics Canada signature and the Canada wordmark). The agency also came up with a logo for its 75th anniversary, in 1992, incorporating the colours of the agency, burgundy and blue, which was used on all publications, letterheads and envelopes.

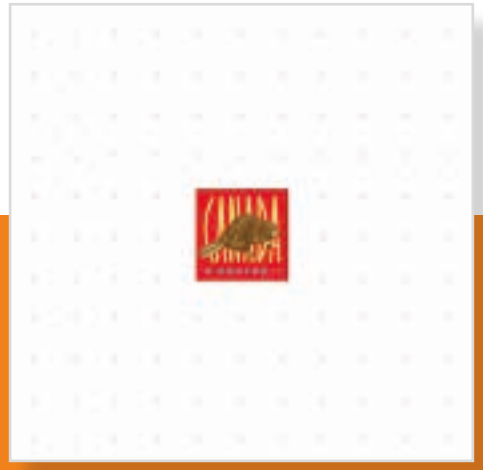
In 1992, Statistics Canada's Marketing Division was created, to improve product planning by reviewing the needs of users and monitoring market response. While marketing certainly was not new at the agency, it was felt that it was time for a stronger, more visible, and more highly coordinated marketing function with consistent pricing. The aim was to become more client-oriented—to learn more about the agency's clients in order to specifically target their needs. By packaging products in a more user-friendly way, more people would be able to locate and use information more easily. It was also seen as a way of generating revenue to help address some of the shortfalls resulting from successive budget cuts. The division was charged with finding the most useful and cost-effective way to deliver products—drawing on all kinds of new and old technology available, including CD-ROM, diskettes, online databases, custom facsimile products, and, of course, paper.

The agency's flagship compendium publication, *Canada: A Portrait*, which presented the full range of the agency's information in a user-friendly fashion, was also redesigned. When it was released, in late 1992, *The Ottawa Citizen* called it "one of the most beautiful books ever published in Canada." Statistics Canada won the grand prize for Marketer of the Year from the National Capital Chapter of the American Marketing Association, apparently for "sheer marketing grit" in the face of unforeseen circumstances. The award rewarded marketing excellence and recognized innovative thinking and creativity; the winner was selected by four Toronto-based marketing experts. In essence, the marketing plan had to be changed when budgetary cutbacks throughout the government resulted in a sharp reduction in orders for the book from the usually strong federal market. The marketing coordinators sought out new markets—launching an aggressive pre-publication



Statistics Canada's new corporate identity, 1990

campaign that sold 15,000 copies before the book was even printed. In fact, it was so popular that an employee from the statistical reference centre kept the centre open late on December 24, 1992, in order to sell publications to frantic last-minute shoppers. Over 900 copies of *Canada: A Portrait* were sold in December alone, and 40 last-minute shoppers bought copies on December 24. All copies in stock were sold, and one customer even bought the display copy, joking that perhaps it would become a collector's item.



Cover of the flagship publication
Canada: A Portrait

Interviewer looking at a map, 1997

NOTABLE MILESTONES IN THE STATISTICAL SYSTEM

In the late 1980s, policy concerns were arising for which statistical information was not available, including international competitiveness, impediments to interprovincial trade and their impact on constitutional arrangements, the impact on individuals of social, health and education programs, and the structure and performance of service industries. The agency put forth proposals and received additional funding over five years, some of which would come directly from the budgets of policy departments. The name of the initiative was Data Gaps (later to be referred to as Data Gaps I, when a second iteration came on scene), and it secured funding for the agency's first longitudinal surveys, to strengthen the system of national accounts, to fill gaps with respect to health, education and environment data, and to improve services-sector statistics.

The introduction of longitudinal surveys

In the 1990s, social policy researchers were increasingly feeling the need for micro-level longitudinal data to better understand the effects of social policy. As part of the new analytical focus at the agency, it was beginning in the exploration of longitudinal studies, databases, and surveys for greater analytical insight into changes occurring under the surface of aggregated information. For example, one project was analyzing the economic performance over time of firms engaged in international trade in services. Another was looking at the fate of individual workers faced with job loss, and analyzing changes in earnings and employment over the longer term. This decade saw the launch of many longitudinal surveys at the agency, and many policy departments and academic researchers were strong proponents of this new generation of surveying as a result of the potential for rich analyses of social phenomena.

There were also some "longitudinal-esque" surveys, such as the Labour Market Activity Survey (known as the Work History Survey until 1986), which collected retrospective information for 12 months, and combined this with a second 12-month period collected a year later. The Labour Market Activity Survey was conducted as a supplement to the Labour Force Survey, and was a major development for the household surveys program. Another longitudinal initiative was known as the Longitudinal Administrative Database, derived from administrative records rather than surveys. A 20% sample of Canadian taxfilers was constructed from the information



Interviewers, 1996

provided annually to the Canada Customs and Revenue Agency in personal income tax forms. The coverage went back to 1982, with additional years added as they became available.

Three major longitudinal surveys were born in the first half of the decade: the Survey of Labour and Income Dynamics (SLID), the National Longitudinal Survey of Children and Youth (NLSCY), and the National Population Health Survey (NPHS).

The Survey of Labour and Income Dynamics (SLID) was funded from the first data gaps initiative (Data Gaps I), and its first period of data collection was in 1993. The survey examined changes in family composition, labour market activities, earnings and family

income over time, shedding light on income transitions—such as escaping the "poverty trap." The survey collected information for six years from a sample of households and was designed to continue with overlapping panels. Halfway through the life of the first panel, a second six-year panel would be selected, and so on. The first panel of 15,000 households (about 31,000 individuals) was interviewed in January 1993 to collect preliminary information that would have a continuing influence on labour market activity and personal and family well-being, such as educational attainment, work experience, marital history, and the number of children born and raised.

Labour and income information was collected the following year. The information provided enabled the analysis of changes resulting from the economic climate, shifts in policy, and changes over the lives of Canadians. The first publication was released in 1995 with articles highlighting some of the results from the preliminary interviews. Although the analytical payoff of longitudinal studies was high, such studies were costly in terms of dollars and respondent burden. One of the ways this was partially mitigated was that, for income questions, respondents were given the choice of answering the questions or allowing the agency to access their tax file directly. In 1995, work was also beginning towards integrating SLID and the Survey of Consumer Finances as both collected detailed information on the incomes of Canadians. The integration was complete in 1998, and SLID became the source of both cross-sectional and longitudinal information on income trends.

The National Longitudinal Survey of Children and Youth (NLSCY), funded by and jointly conducted with Human Resources Development Canada went into the field in 1994. This was the country's first comprehensive national longitudinal survey dealing exclusively with the development of children. It collected information on a broad range of variables, including family circumstances, parenting style, neighbourhood perception, child-care arrangements, custody history, pre-school vocabulary, behaviour, socio-economic background, health, and school practices and performance. Information would be collected for 25 years on all factors that might influence a child's development, from the child's parents, teachers and principal, and from the children themselves once they reached 10 or 11 years old.

In 1992, developmental work was completed on the new National Population Health Survey (NPHS), and data collection began in June 1994 with funding from the first data gaps initiative. The survey would follow a sample of 17,000 Canadians over time to learn about the health risks they were exposed to, their activities related to health protection, the evolution of their health, their use of the health care system, and the impact of major health interventions. The survey was also designed to serve as a platform for supplementary content and to be linked to routinely-collected administrative data, including vital statistics, environmental measures, and community variables. This was an important new data source at a time when health care reform was a major issue across the country. The resulting information was used to help fuel policy discussions on the possible redesign of the country's health care system.



National Population Health Survey Overview publication, 1994-1995

Acceleration in social statistics programs

A new Social Policy Simulation Database and Model was developed to allow researchers and policy analysts to study the possible effects of alternative tax and social policy changes on income distributions, on different types of families, and on federal and provincial expenditures. The database combined administrative data from personal income tax returns and unemployment claimant histories with survey data on family incomes and expenditures, presenting a detailed portrait of 170,000 "composite" Canadians in a non-confidential, statistically representative sample of Canadians. First released in 1990, it would significantly improve the richness of policy analysis and public debate in the area of public planning and social research.

A new version of the Uniform Crime Reporting survey was launched in 1988; it is referred to as UCR2, or the "incident-based" survey. The survey was designed to replace the aggregate pen- and-paper counts of police-reported crime and to standardize the detailed electronic records from police services on incidents, victims, and the accused. This was accomplished through standard interfaces with police record management systems and was one of the first electronic collections of administrative data for Statistics Canada. By 2009, all major and almost all small police services had converted to the new administrative data survey.

In the early 1990s, two other important social surveys were initiated: the Transition Home Survey and the Violence Against Women Survey. Both were conducted as part of Canada's Family Violence Initiative, the federal government's main collaborative forum for addressing family violence. Still in existence today and coordinated by the Public Health Agency of Canada, the Family Violence Initiative is a collaboration between 15 partner departments and agencies to help prevent and respond to family violence. Statistics Canada's contribution has been through improving the availability of national level data on the nature and extent of family violence.

The Transition Home Survey was first conducted in 1991/1992 as a supplement to the Residential Care Facilities Survey to address the need for information about services for victims of family violence. Starting in 1992/1993, the Transition Home Survey became an independent survey and is the only source of information in the country on shelters for abused women and their children. As a census of residential facilities providing services to women and their children, it collects information for service providers, non-profit organizations and governments, which is used to develop programs and services. It has been conducted every two years since its inception.

The Violence Against Women Survey was first conducted in 1993, and was the first survey measuring the nature and extent of violence against women in Canada. Conducted as a collaboration between the Canadian Centre for Justice Statistics and the Social and Aboriginal Statistics Division, it was one of the most sensitive surveys ever conducted by the agency. It was also one of the first of its kind in the world and therefore generated a great deal of international interest. The interviewers were all women who were carefully screened for sensitivity and were trained by a clinical psychologist before the survey began. Over 12,300 interviews, each lasting from 15 minutes to 3 hours, were conducted with women aged 18 and older. Respondents were given a toll-free number to call back in case they could not comfortably or safely complete the interview. The manager of the survey, Holly Johnson, was presented with the Employee of the Year award recognizing her leadership, professionalism, and outstanding performance in leading the survey. Her advice was subsequently sought for similar surveys in Russia and the United States. She also co-edited a special edition of the *Canadian Journal of Criminology* dedicated to the survey.



The Honourable Monique Vézina visits Statistics Canada during International Women's Week, 1987

SOCIAL SUPPORT

In March 1987, the Minister Responsible for Statistics Canada, the Honourable Monique Vézina, came to the agency to give a talk as part of the celebrations for International Women's week. Minister Vézina helped to get the ball rolling for the daycare facility at Tunney's Pasture, which would open its doors in 1988. It was the fifth to be established within the public service as part of a pilot project directed by Treasury Board.

Childcare was a key social issue at the time, and the agency was conducting a Child Care Survey for Health and Welfare Canada and the National Daycare Research Network, to gather information on the country's child care needs from a sample of 32,000 households. The data were needed to help shape policy, tax treatment, and other key childcare issues.

As well as the provision of daycare services, issues relating to human caring services more generally were increasingly of interest to governments and health care advocates. In 1989, Statistics Canada held a Symposium on Social Supports, to discuss the development of programs and services to the elderly, persons with AIDS, persons with a physical or mental-health disability, and children. AIDS was a new and prominent social issue, having been first reported in the early 1980s. The first World AIDS Day was held on December 1, 1988, with a theme of "more information, less discrimination."

The General Social Survey: Game changer

One of the most important social realm milestones of the 1980s was the establishment of the General Social Survey in 1985. This multi-purpose survey was conceived to allow for the observation of long-term social trends as well as to collect information on social issues of immediate interest. The survey began with a sample size of 10,000, which grew to 25,000 by 1999. Aimed at those 15 years of age and older, the survey investigated five main themes on a rotational basis, including health, time use, victimization, education and work, and family.

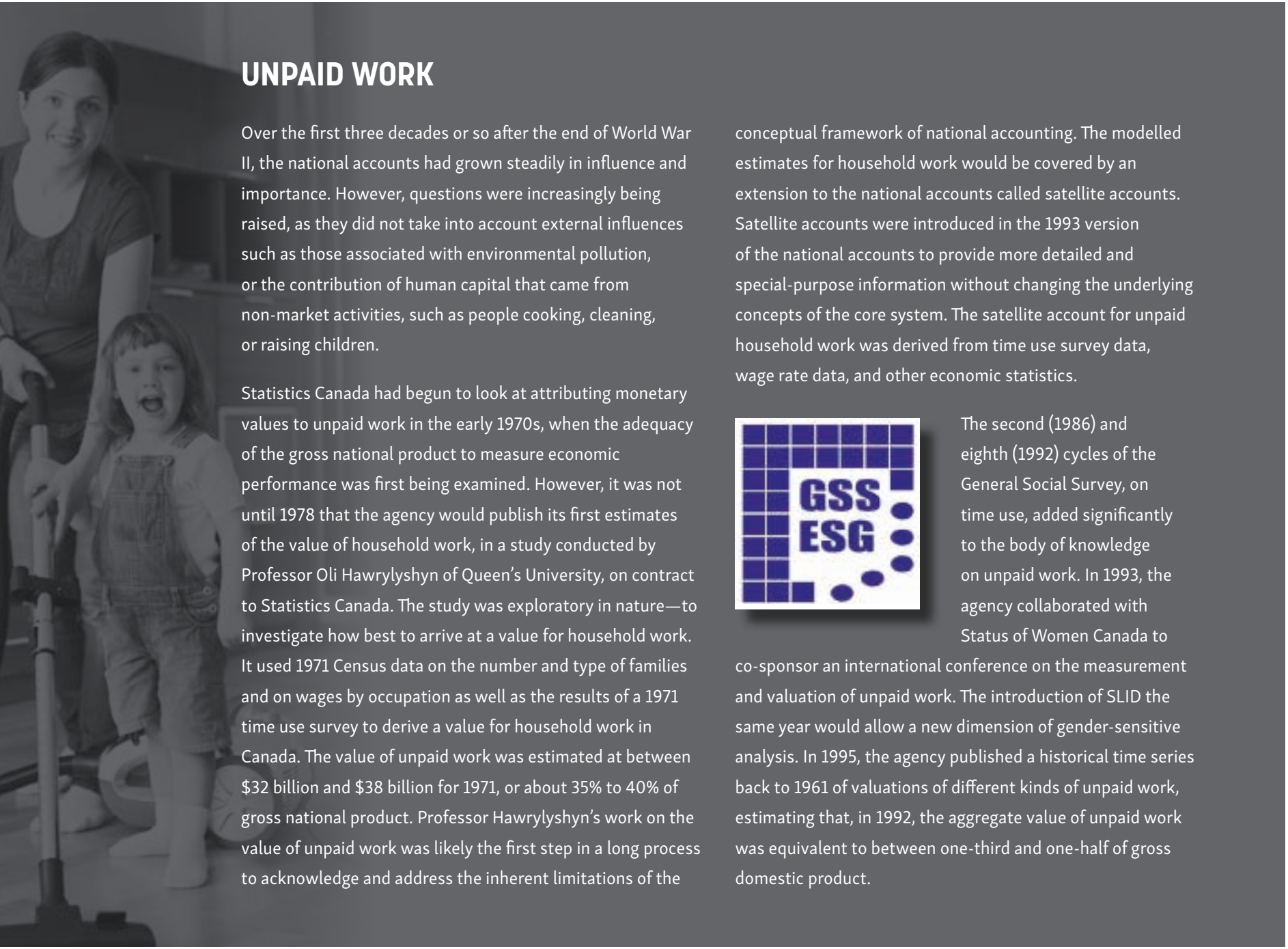
The survey emanated from Dr. Fellegi's secondment to the U.S. Census Bureau in the late 1970s. At the time, he realized how much further advanced the Americans were in terms of social statistics, especially as the Canada Health Survey had just been cancelled and the Labour Force Survey was the only source of current data on Canadian households. Upon his return, as Assistant Chief Statistician of Social Statistics, he found funding for the survey, but as budgets were tight, the most feasible approach to collecting such a vast amount of information was on a cyclical basis. In fact, it would become anecdotally known as the "poor man's survey." The General Social Survey collected information on a different topic each year on a five-year cycle, with health and social support networks for the elderly as the focus for Cycle 1 of the survey. The survey has also served a springboard for other new surveys, which initially formed part of a cycle (such as health and education), before becoming independently conducted.

The evolution of a Canadian health information system

In 1988, the National Health Information Council (NHIC) was formed as a joint federal–provincial body by the Conference of Deputy Ministers, with the aim of improving health information through the development and coordination of a national health information system. The NHIC was a body of provincial assistant deputy ministers and their counterparts from Statistics Canada and Health and Welfare Canada. It reported to the provincial and federal deputy ministers of Health and the Chief Statistician on data priorities, the division of responsibilities, and the adequacy of resources. The NHIC's terms of reference included reviewing the concept of a National Centre for Health Information and how Statistics Canada fit into the picture. Statistics Canada proposed renaming its own Health Division to the Canadian Centre for Health Information (CCHI), and giving the NHIC purview over all of its health information programs, including powers to set program priorities and strategic direction. The NHIC agreed, and the CCHI was established in 1989.

The NHIC was intended to develop and maintain an ongoing national consensus on all aspects of national health information systems and to continuously review priorities and plans related to the collection, processing, and release of health information at the national level. The purpose of bringing together representatives from all federal / provincial / territorial health departments, including Health and Welfare Canada, and Statistics Canada, was to facilitate the direct involvement of the provinces and territories, with responsibility for health care, in providing guidance on their priorities. It would also support provincial consensus in terms of the provision of comparable health-related data across the country. There were challenges with roles and responsibilities between the NHIC, Health and Welfare Canada, and Statistics Canada, as the mandate of the NHIC spanned several key areas in both organizations. There was also continued difficulty in achieving collaboration with the provinces and territories.

In April 1990, the NHIC accepted a joint Statistics Canada–Health and Welfare Canada offer to sponsor a consultant to facilitate



UNPAID WORK

Over the first three decades or so after the end of World War II, the national accounts had grown steadily in influence and importance. However, questions were increasingly being raised, as they did not take into account external influences such as those associated with environmental pollution, or the contribution of human capital that came from non-market activities, such as people cooking, cleaning, or raising children.

Statistics Canada had begun to look at attributing monetary values to unpaid work in the early 1970s, when the adequacy of the gross national product to measure economic performance was first being examined. However, it was not until 1978 that the agency would publish its first estimates of the value of household work, in a study conducted by Professor Oli Hawrylyshyn of Queen's University, on contract to Statistics Canada. The study was exploratory in nature—to investigate how best to arrive at a value for household work. It used 1971 Census data on the number and type of families and on wages by occupation as well as the results of a 1971 time use survey to derive a value for household work in Canada. The value of unpaid work was estimated at between $32 billion and $38 billion for 1971, or about 35% to 40% of gross national product. Professor Hawrylyshyn's work on the value of unpaid work was likely the first step in a long process to acknowledge and address the inherent limitations of the conceptual framework of national accounting. The modelled estimates for household work would be covered by an extension to the national accounts called satellite accounts. Satellite accounts were introduced in the 1993 version of the national accounts to provide more detailed and special-purpose information without changing the underlying concepts of the core system. The satellite account for unpaid household work was derived from time use survey data, wage rate data, and other economic statistics.

The second (1986) and eighth (1992) cycles of the General Social Survey, on time use, added significantly to the body of knowledge on unpaid work. In 1993, the agency collaborated with Status of Women Canada to co-sponsor an international conference on the measurement and valuation of unpaid work. The introduction of SLID the same year would allow a new dimension of gender-sensitive analysis. In 1995, the agency published a historical time series back to 1961 of valuations of different kinds of unpaid work, estimating that, in 1992, the aggregate value of unpaid work was equivalent to between one-third and one-half of gross domestic product.

the further development of the NHIC's plan for the evolution of a national system for health information. The proposal was further endorsed at a June meeting of the deputy ministers of health.

A task force, led by former Chief Statistician Martin Wilk, was created. It tackled a major review of the country's health information requirements to better understand the factors affecting health, and how the government could be spending its money more effectively. Expenditures on health were close to 9% of Canadian gross domestic product (GDP). However, there was very little information on the effectiveness or efficiency of the health system in improving health outcomes. The popular question at the time was "What are we getting for our health dollars?" The task force also formulated planning recommendations for the NHIC toward the objective of establishing a health information system for Canada. In 1991, the task force published *A Report by the National Task Force on Health Information*, popularly referred to as "The Wilk Report," which described health information in Canada as being in "a deplorable state," lacking coordination, planning, and responsiveness to user needs.

The report recommended the creation of a non-governmental, not-for-profit national organization to coordinate health information. After intense discussions by the ministers of health, approval in principle was given in September 1992 for the creation of the Canadian Institute for Health Information (CIHI), a national mechanism to coordinate the development and maintenance of a comprehensive and integrated health information system for Canada. Its creation allowed for an independent linkage of federal, provincial, and territorial governments with non-governmental health groups. Its mission would be to provide and coordinate the provision of accurate, timely information required for the establishment of sound health policy, for the management of the health system in Canada, and for generating public awareness about the factors affecting good health.

The new institute would amalgamate existing operations and responsibilities (in whole or in part) from four organizations: the Hospital Medical Records Institute, the Management Information Systems Group, Health and Welfare Canada's Health Information Division, and Statistics Canada's Canadian Centre for Health Information. In identifying those activities to be transferred to the CIHI, decisions were based on comparative advantage in terms of cost, infrastructure, or demonstrated competence, as well as legislated mandates. Health and Welfare Canada and Statistics Canada wrote letters of intent delineating their positions with respect to the new institute, including that they would not compete in production of revenue-producing activities or services, subject to being able to fulfil their legislative mandates. The NHIC would be disbanded, although the steering committee continued to act as an interim board of directors to oversee implementation planning for the new institute.

The official transfer of most operations and responsibilities to the CIHI took place in 1994, when it began operating. It was determined that the CCHI would cease to exist once the CCHI was established. However, the production of health statistics at the agency could not disappear altogether as there were functions that were not candidates for transfer or devolution. Statistics Canada transferred a number of activities along with their associated funding to the CIHI, including the following: hospital facilities and operations data, residential care facilities data, hospital inpatient admission / discharge abstracts, patient-oriented database development, information on registered nurses, the tuberculosis registry (and other similar registries), health status analyses, and nosology. As well, to avoid confusion when CIHI became operational, CCHI would be renamed the Health Statistics Division.

CELEBRATING 50 YEARS

The Vital Statistics Council for Canada celebrated its 50th anniversary in 1995. Established in 1945, the Council is an inter-jurisdictional advisory group consisting of the heads of the vital statistics organizations from all provincial and territorial governments as well as the Health Statistics Division of Statistics Canada. Over its history, the Council has focused on developing common approaches for the collection of vital statistics, fostering data sharing, and facilitating problem solving through sharing experiences, research findings, and expertise.

New health information initiatives

A number of surveys were conducted in the late 1980s and early 1990s to promote and develop health programs. These covered a wide range of health issues, including legal and illicit drug use, mental health, dietary habits, the quality of family relationships, and mental health conditions and how they affected peoples' lives. Health and Welfare Canada funded the first Drinking and Driving Survey in 1988/1989 to develop information for public awareness campaigns, as well as the 1988 Drug and Alcohol Survey to explore attitudes to drug and alcohol use. The Ontario Ministry of Health funded the 1990 Ontario Health Survey, for which the agency participated in an open bidding process, winning against the private sector for both quality and price. Other surveys included the Survey of Mental Health funded by the Ontario Mental Health Foundation, and the Health Promotion Survey, funded by Health and Welfare Canada.

After many years of cooperation and collaboration between provincial / territorial cancer registries and Statistics Canada, the Canadian Cancer Registry (CCR) was established in 1992 as the agency's vehicle to collect cancer-related information from all provinces and territories. This replaced the National Cancer Incidence Reporting System (NCIRS), which had been in place since 1969, and had provided a database to study cancer patterns and trends at the tumour level. While the NCIRS was an event-oriented database, the CCR was established as a patient-oriented database, with the advantage that valuable longitudinal data were made available for all Canadians diagnosed with cancer.

A new national education statistics program

Education and lifelong learning were emerging as key determinants of competitiveness, and it was becoming clear that the country needed better measures of the performance of the education system as well as a framework to better understand educational outcomes. Very little information existed on the relationship between education and labour market success, and the ability of individuals to adjust to changing technologies and economic conditions. Similarly, little data existed on transitions such as that from school to labour market, and those between employment and unemployment, or between employment and retirement. While the agency had a relatively complete picture of the operations of the education system, it had very little empirical information on whether the system was producing the right skills for the labour market, the extent and causes of dropping out, the effect of class size or teacher training, and the relationship of education to socio-economic status.

In 1988, provincial deputy ministers of education agreed to a formal working arrangement with the agency to develop a comprehensive national education statistics program. As a result, the Canadian Education

Statistics Council (CESC) was established in 1989 as a federal-provincial-territorial partnership between Statistics Canada and the Council of Ministers of Education to govern the education statistics program. A year later, Canada-wide statistical measures for elementary, secondary and postsecondary education were first produced and published.

Adult literacy around the world

The agency's international reputation was growing, and it was increasingly being asked to take the lead on international initiatives. For example, Canada was asked by the United Nations in 1990 to play a leading role in redesigning the United Nations International Crime Survey. The survey collected information for international comparisons, in which Canada was one of several participating nations.

The agency was also asked by the Organization for Economic Co-operation and Development (OECD) to provide international coordination and leadership for a multinational survey of literacy—the world's first large-scale multinational comparative assessment of adult literacy skills. It was to allow the analysis of the relationships between literacy and education, and between labour market success and economic growth. Administered in 1994, 1996 and 1998, the International Adult Literacy Survey was a large-scale co-operative effort by governments, national statistical agencies, research institutions and the OECD. The development and management were coordinated by Statistics Canada and the Educational Testing Service of Princeton, New Jersey, with input from the National Centre for Education Statistics of the United States Department of Education. Nine countries participated in the first cycle, in 1994: Canada, France, Germany, Ireland, the Netherlands, Poland, Sweden, Switzerland, and the United States. Encouraged by the success of the first cycle, five additional countries or territories also administered the next cycle (Australia, the Flemish community in Belgium, Great Britain, New Zealand and Northern Ireland). For the last cycle, an additional nine came on board (Chile, the Czech Republic, Denmark, Finland, Hungary, Italy, Norway, Slovenia and the Italian-speaking region of Switzerland).

The survey was not without controversy. After the first round of data collection and analysis, France withdrew its results before publication. The withdrawal was motivated by concerns with respect to the comparability of the results, specifically that they were thought to underestimate the true literacy skills of the adult population in France relative to those of adults in the other countries. The European Commission commissioned a review of the survey, which was conducted by the United Kingdom Office for National Statistics. Before that review commenced, data had already been collected for the second round (these were published in 1997), and, while the review was under way, the third round of data was collected. The review, which covered only the first cycle, was published as the final analysis was being prepared. While it identified some issues, most had already been dealt with as lessons learned from the first cycle. Over the course of the second and third rounds of data collection, more stringent specifications and quality assurance procedures helped to reduce inter-country variation in survey practice.

Re-examination of Confederation

The government was re-examining Confederation in 1987 and 1991, in the context of the Meech Lake and Charlottetown accords, in an attempt to devolve power to the provinces and territories in the hopes of bringing Quebec into the constitutional fold. In preparation for these discussions, it was necessary to better understand the economic links between the provinces before any changes to the existing arrangements could be proposed. However, 1984 had been the last time a survey

of interprovincial trade had been conducted. The agency received funding through the Data Gaps I initiative to carry out a much needed survey on the origin and destination of provincial trade and to update interprovincial input-output tables.

Defending the agency's political neutrality

The year 1991 also marked the introduction of the new 7% Goods and Services Tax to replace the Manufacturer's Sales Tax, which had been levied at the manufacturer's gate. The tax had to be accounted for in the national accounts, and the agency was preparing for its implementation in both its statistics and its operational transactions with the private sector. An attempt was made to suppress the publication of an analytical article after the introduction of the tax. Prices had risen as expected, and the analytical article attempted to shed some light on how much of this rise was attributable to the new tax versus what inflation would have been without it. Dr. Fellegi categorically refused to put off publication of the article, and refers to the incident as the only incident in his tenure where there was an attempt at interference with the political neutrality of the agency from government.

Businesses: Small and large

The importance of small businesses to the economy continued to be recognized as these firms continued to be the focus of many initiatives at the agency. From 1978 to 1986, the number of questionnaires sent to small businesses was cut in half. As well, a toll-free information service was planned in order to assist businesses across the country in completing questionnaires. A new series of statistical reports on small business was launched in 1986, including *Small Business Profiles*, which presented a range of financial data (including assets and liabilities, working capital, operating expenses) for various industries, for use by small-business owners and managers. A Small Business and Special Surveys Division was also created in 1987/1988 to carry out customized surveys that could be piggy-backed onto existing surveys at a small additional cost.

The Large Enterprise Statistics Program was established in the early 1990s with 9 profilers from Ottawa, Montréal, Edmonton, and Vancouver. The profilers each had a portfolio of businesses for which they had continuing responsibility and with whom they would liaise and establish working relationships. The profilers would research, visit the businesses, assemble material, and update the Business Register as required. With one profiler gathering all the information required from a given company, data collection was streamlined by means of reduced respondent burden and less duplication of information, resulting in more complete and better-integrated data. The program also served to reinforce good relationships with large companies, which represented about 30% of all business activity in Canada at the time.

As well, the agency instituted a new program to regularly measure response burden. An initiative that contributed substantially to the reduction of response burden was the



Large Enterprise Statistics Program

redesign of the Annual Retail and Wholesale Trade Survey. For years, the agency had conducted an annual census of wholesalers and retailers to obtain detailed information for the calculation of the value added by these industries. It also served as a benchmark for the monthly sample surveys of wholesalers and retailers. Those surveys, however, had recently been redesigned and strengthened to such an extent that they could stand on their own without the need for the benchmarking provided by the annual census. In addition, it was realized that a lot of the more detailed content could be collected more efficiently through a specially expanded version of the January cycle of the sample survey. These changes were implemented for the first time in 1994, greatly reducing the response burden on businesses as well as reducing costs for the agency.

Statistics Canada switches from gross national product to gross domestic product as a prime measure of output

In July 1986, a historical revision of the System of National Accounts was released, after only 2 years instead of the 6 years taken for the last major revision, in 1972. The revision included two major changes—the switch to using gross domestic product instead of gross national product along with reworking the data from 1961 to 1986, and the rebasing of the price indexes to 1981 constant dollars. The most visible difference in the revised accounts was the switch from gross national product to gross domestic product as the prime measure of the country's output. It was felt to be a more appropriate measure of output for the analysis of inflation, production, employment and productivity, given the important contribution of foreign investment to the country's economic development.

While gross national product measures production "owned" by residents, at home or abroad, and hence is a better indicator of the income of Canadian residents, gross domestic product measures domestic production regardless of whether the production is owned by residents or non-residents. In other words, it measures the impact of all production taking place in Canada regardless of who owned the assets. The switch better aligned Canada's practices with international practice and recommendations of the UN System of National Accounts, and allowed the country's accounts to be directly comparable with other measures of economic activity in Canada and with the National Accounts of most other countries. In 1989, the GDP numbers at constant prices were rebased for 1986, and would thereafter be recomputed every 5 years instead of every 10.

FIXED RELEASE DATES FOR ECONOMIC SURVEYS

Efforts were being made to set fixed release dates for important economic and business data series, further to general requests from users and, specifically, advice from the National Statistics Council. In 1988/1989, fixed release dates were established for the National Accounts. While fixed release dates were established originally as a courtesy to data users who wished to plan their time for analysis as soon as the data were available, a side benefit ended up being more important in the long run: that pre-established release dates impeded any perception of political favour in terms of when key indicators were made public. Fixed dates also made life easier for Statistics Canada employees by providing anchors around which they could plan and manage their programs.

International trade statistics initiatives

The agency had been working with the international community since 1971 on the development of a new international commodity description and coding system—called the Harmonized System. The aim was to come up with a standard identification of commodities in trade documents and improve the comparability of international statistics. It was not an easy feat—the system comprised over 5,000 product descriptions and codes, with each definition and classification agreed to in plenary sessions. Created under the authority of the Customs Co-operation Council (now known as the World Customs Organization, an independent intergovernmental organization based in Brussels, Belgium), it was accepted as final in June 1983. It would come into effect almost 5 years later, in 1988. It would eventually be used by over 200 countries and economies as a basis for their customs tariffs and for the collection of international trade statistics. The initiative greatly assisted in trade data comparability and therefore helped to facilitate international trade negotiations. The new classification



Employees from the International Trade Division, 1987

system was instated at Statistics Canada after a three-month parallel run under both the old and the new systems.

One of Canada's most crucial international statistical relationships was that with its key trading partner, the United States. In 1971, an agreement between Canada and the United States was reached, which provided the basis for the countries to reach mutually agreed-upon estimates for import and export data. This involved an annual reconciliation process of aggregate data five to six months after each calendar year. In July 1987, a new memorandum of understanding was signed on the exchange of import data, considered a world first between any two trading nations. As there was consensus that import data were generally better measured than export data (mostly because imports are the source of customs duty and exports are not), the countries agreed that, by 1990, they would replace their own export figures used to calculate the trade balance with the other country's import figures, in detail, by commodity.

This replacement was dependent on the adoption by both countries of a compatible system of coding commodities, the new Harmonized System, which was implemented at Statistics Canada in January 1988. The system's introduction in the United States ended up being delayed as it formed part of the *Omnibus Trade and Competitiveness Act* of 1988, which would come into effect one year later, on January 1, 1989. The two countries also agreed upon an official conversion key for industrial classifications that would permit detailed industrial analyses of one country's performance against the other's. This was becoming increasingly important as a result of free trade agreements.

March 19, 1990, marked the first release of data from the Canada-U.S. data exchange. Its implementation at Statistics Canada had the side benefit of resulting in efficiency gains. In 1988, when the Harmonized System was first introduced, the International Trade Division was working to full capacity with over 200 people. By 1990, with a reduced workload in the exports section, and the Harmonized System in place, the division was working efficiently with a complement of 130 people. Outside of the agency, it had an ever bigger impact as it exempted exporters from completing more than 2.5 million documents each year.

The agency was also in the midst of creating a world trade database, the TIERS, to enable the measurement of trade between other countries. For example, trade reconciliation studies with Japan and the European Community were under way. Information about trade among other countries, their output and employment, was added to data the agency already possessed on Canada and its trading partners. This broad international data set was among the first of its kind, allowing Canadian businesses to assess the relative competitiveness of Canada in other markets. In 1992, TIERS included merchandise trade statistics based on customs data for over 16,000 import and 6,000 export commodities of 200 countries under the Harmonized System.

FREE TRADE

A free trade agreement between Canada and the United States (the *Canada-United States Free Trade Agreement*) was signed in January 1988. The Canada-United States Free Trade Agreement phased out a wide range of trade restrictions in stages over a ten-year period, and resulted in an increase in cross-border trade. It would eventually be superseded by the *North American Free Trade Agreement*, which came into force in January 1994 and included Mexico. The agency was preparing for the data needs stemming from free trade, including the analysis and monitoring of the affected industries.

Measuring the services sector

The statistical system was formed and matured around the concept of goods—the primary industries of agriculture, manufacturing, mining, and fishing, for example. The services sector grew in relative importance and, in the post-war period, began to surpass the goods sector. It was not only the fastest-growing sector of the Canadian economy, but also one of the most conceptually difficult to measure. Statistics Canada was therefore keen to improve measurement in this area, but found it difficult to redirect resources from goods surveys to services surveys, not only because of the large shift required internally, but also because of the required budgetary reallocation.

Statistics Canada proposed that statistical agencies of several countries pool resources to develop a classification system for service industries. Each country would write draft classifications for one industry, with Canada drafting the classification for the architects and engineers industry, and later the classifications for the telecommunications industry and the finance and insurance industries. The proposed



Statistics Canada hosting the fourth meeting of the Voorburg Group, 1989

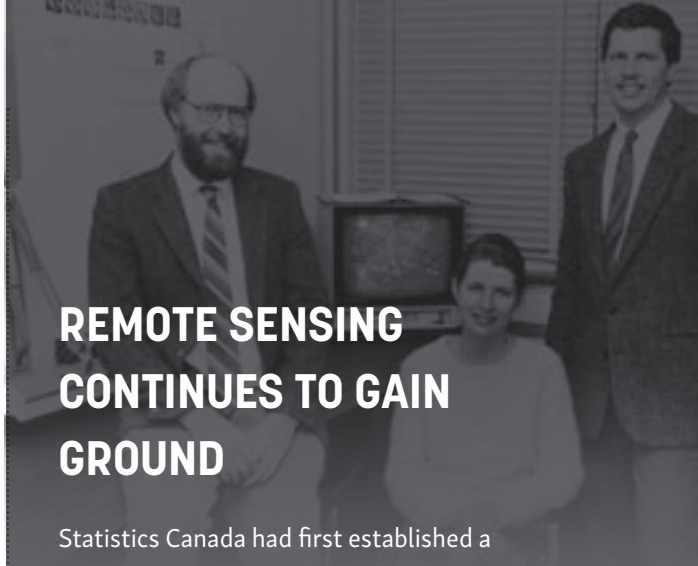
classification system was officially sanctioned by the UN statistical office in February 1989.

Informal and voluntary meetings of representatives from national statistical agencies to address selected problems in statistical methods have become formally known as "city groups," named after the place where they hold their first meeting. They are an innovative and efficient use of resources to improve international statistical standards. The city group on service statistics became known as the Voorburg Group on Services Statistics, as it was hosted by the Netherlands Statistical Office in January 1987. Nine countries and six agencies gathered to collaborate on a plan to build an internationally accepted classification for service industries. Canada hosted the fourth meeting of the group in October 1989, at which the group discussed 37 papers on topics ranging from international trade in services to proposals for a revised commodity classification for specific industries. One of Statistics Canada's prior chief statisticians, Dr. Sylvia Ostry, took part in the meeting as a panelist for one of the agenda items on the information needs of service industry policies. The group met yearly to examine the progress made in each country. In 1991, it discussed and endorsed a Canadian proposal to conduct an internationally comparable survey of the computer industry.

This services data gap also resulted in a modest expansion in the number of services price indexes. This was not an easy feat, as services indexes are much more difficult to construct than goods indexes owing to the more subjective nature of services. It is harder to hold the quality of services, than the quality of goods, constant, for the purpose of measuring a pure price difference. The development of services indices had begun in the 1980s with the Consulting Engineering Services Price Index. To help address the data gap, new price indexes were constructed to cover topics such as informatics professional services, telecommunications, traveller accommodation, and accounting services.

New generalized systems

In 1987/1988, much of the developmental work in methodology involved the creation and testing of a Generalized Survey System, a set of standard methods for conducting surveys. The system would remove the necessity to design a custom-made program for each survey, and thus would reduce the time, money and energy required, and would promote the use of the best survey methods. The first two modules, the sampling module and the edit and imputation module, were put in place in 1988. Work was continuing on the data capture and



REMOTE SENSING CONTINUES TO GAIN GROUND

Statistics Canada had first established a remote sensing program at the agency in the Agriculture Division in 1979 to use satellite imagery to derive crop area estimates and look for alternative methods to improve the accuracy of survey estimates, lower respondent burden, and better plan sampling methods. As noted in the previous chapter, one of the first major projects used data from Landsat satellites to compare traditional and satellite-derived estimates of potato crop areas for the 1980 crop year in the Saint John River Valley in New Brunswick. By 1989, the technology was being used to assess crop conditions, with research efforts directed toward yield estimates. Statistics Canada's operational use of remote sensing was quite advanced at the time, and groups from various countries visited with a view to learning from the agency.

tabulation models. In fact, two of the largest applications were introduced in the 1991 Census Program—the generalized system providing automated coding by text recognition for the Census of Population, and the Generalized Edit and Imputation System for the Census of Agriculture. By 1992, the data collection and capture system had been developed to the point where it could be implemented both at headquarters and in regional offices. While use of the generalized systems was a corporate priority, the challenge was to ensure their use in all new or redesigned surveys except under exceptional circumstances. In 1994, a new Generalized Systems and Methods Training Centre was opened, which provided courses and demonstrations of the systems. At the time generalized systems were saving the agency $0.8 million a year on business surveys alone.



Assistant Chief Statistician Gordon Brackstone (far right) welcomed visitors to the open house at the Generalized Systems and Methods Demonstration Centre in June 1994.

QUALITY GUIDELINES

One of the important new products of the mid-1980s was the first edition of Statistics Canada's Quality Guidelines. Drawing on the collective experience of many Statistics Canada employees, this was a set of management practices and technical options to be considered in the pursuit of quality objectives. They would assist with the planning and design of surveys as well as with the evaluation and analysis of results. This was an important reference document for the agency, with numerous revised editions released to evolve the guidelines to reflect advances in statistical thinking and technology.

The year 1985 also marked the creation of the Questionnaire Design Resource Centre (QDRC), which was established as the focal point of expertise at the agency for questionnaire design and evaluation. Until 1992, the agency used external private firms specializing in market research to test its questionnaires. Beginning in 1992, Statistics Canada began to conduct testing in-house through the QDRC, using methods such as focus groups and cognitive interviews. A few years later, testament to its value, the agency developed and adopted its *Policy on the Review and Testing of Questionnaires*, requiring that all new and redesigned questionnaires be reviewed and tested by the QDRC.





The "bonhomme," a six-foot-high ice sculpture of the 1986 Census symbol for Winterlude

CENSUS PROGRAMS

A significant feature of the 1986 Census was the sheer volume of unpaid advertising and support, including from agency employees. Census workers, along with their friends and relatives, set out to design and create a six-foot-high ice sculpture of the 1986 Census symbol (the "*bonhomme*") for Winterlude. A team from the Canadian Centre for Justice Statistics also participated in the ice sculpture contest, with a sculpture of the arrest of a suspect. An agency employee wearing a *bonhomme* costume also made public appearances, including at schools, to encourage children and their families to be "counted in." In addition, famous Canadian personalities donated their time to promote the Census through filmed public service announcements, which were used extensively across the country. These included Andy Moog and Kevin Lowe of the Edmonton Oilers hockey team, Dale Hawerchuck of the Winnipeg Jets, singer Ian Tyson, 1984 Olympic medalists Alwyn Morris and Caroline Waldo, and actor John Vernon. The effectiveness of the unpaid communications strategy depended also on the participation of organizations with communications vehicles that recognized the importance of the census for their own operations. For example, the Safeway chain in Western Canada printed the census logo on their trucks and grocery bags.

The 1986 Census included questions on Aboriginal identity designed to provide better data on the numbers and characteristics of Inuit, status Indian, non-status Indian, and Métis populations in Canada. A separately funded Aboriginal Peoples Program was also established to build statistical capacity among Aboriginal peoples and provide data to Aboriginal communities and organizations for their own purposes (e.g., service delivery and program development).

The 1991 Census welcomed a number of changes, such as collecting information on common-law relationships as well as marriages. As well, mail-back was extended to virtually all areas of the country, while previously only 60% of the population mailed back their questionnaires. The Census also began including non-permanent residents in the target population for the first time. Post-censal surveys for the 1991 Census included a survey of Aboriginal peoples and a survey of people with a disability. The latter was to be similar to the Health and Activity Limitation Survey, conducted in conjunction with the 1986 Census, but would provide more current information and enable an assessment of changes since 1986.

Integrating tourism

In 1983, the General Assembly of the World Tourism Organization made a case for integration of tourism statistics into the System of National Accounts. While the tourism industries (hotels, restaurants, taxis, airlines, tour operators, etc.) were indeed in the accounts, there was no overarching aggregation to show the impact of tourism as a "quasi-industry" unto itself. In response, a national task force on tourism was established in 1985 by federal, provincial and territorial ministers of tourism with retired Chief Statistician Martin Wilk as chair. This was a joint public- / private-sector task force to establish a statistical foundation for the planning, marketing, management and profitability performance of tourism. The agency set up an internal research activity to lend analytical support to the development of a new database and provided the secretariat to the task force, with over 40 employees from different areas of the agency contributing time and experience to the two-year project. The task force worked with more than 50 organizations from all sectors of the industry — government, business, trade associations and universities — and presented its final report to tourism ministers in November 1986. Its recommendations included that existing federal and provincial surveys be improved and that a Tourism Research Institute be established to determine how to meet future data needs. In March 1987, Martin Wilk was awarded with the F.G. Brander Memorial award by the Tourism Industry Association of Canada in recognition of the task force's work. This work would lead to a new tourism satellite account in 1994, which would provide an integrated picture of tourism-related spending to show tourism's overall contribution to output, employment and exports.



Edward T. Pryior, 1988

MR. CENSUS

In November 1992, a man fondly referred to as "Mr. Census" passed away. Dr. Edward T. Pryor was a sociologist, a scholar, and a renowned speaker who had worked on virtually every facet of the Census since 1968, on a total of 6 censuses. His passion for sociology had inspired many others to follow in his footsteps, and he was a mentor for many young students and employees. He served as a consultant for the 1971 Census, and as an advisor on the census reorganization plan. Later, as Director of the Census Characteristics Division, he was in charge of the 1971 Census Products and Services Program. He served as a manager of the 1981 Census, before becoming Director General of the Census and Demographic Statistics Branch. He was also Project Manager for the 1991 Census. He wrote or co-wrote some 30 articles and publications, and was an ambassador for the agency at home and abroad, including assisting China with its 1982 Census. After his passing, he was recognized with Statistics Canada's Career Excellence Award, which Dr. Fellegi presented to his wife who accepted it on his behalf. An Edward T. Pryor Bursary Fund was also established at Carleton University to provide financial assistance to sociology students.

Address Register and Business Register

A number of operational databases were established in the late 1980s, including the Address Register, which was established in 1987 and was initially used as a post-listing coverage check for the 1991 Census. Staff produced residential address lists for 23,000 enumeration areas in urban areas of the country, by developing lists from various sources, such as telephone listings and hydro billings, and matching them to census geography. The Address Register was an idea that had been revisited a number of times since the mid-sixties, when it was first investigated for the 1971 Census. Finally, in 1987, as part of the research program for the 1991 Census, the possibility of a register of residential addresses for urban areas was shown to be feasible. Prior to having an address register, each census representative would compile an address list for their enumeration area by hand and deliver a questionnaire to each dwelling. However, it was one thing to hand a respondent a questionnaire and ask this individual to mail it back, and quite another to directly target and

STATISTICS ON ABORIGINAL PEOPLES

Throughout the history of census-taking in Canada, definitions, terminology, and methodology associated with the measurement of the Aboriginal population have undergone a number of changes. For example, while "Aboriginal" used to be the term used to refer to the original inhabitants of our country, "Indigenous" today is considered more respectful. Since 1971, significant efforts have been made to improve the quality of the data on the Aboriginal population in Canada. Until 1996, census data on Aboriginal peoples were derived from a question on ethnic origin or ancestry, while the 1996 question asked whether an individual self-identified as an Aboriginal person, and more specifically as a North American Indian, Métis or Inuit.

The Aboriginal Peoples Survey was the first post-censal survey of Aboriginal peoples in Canada. It was developed in 1988 and conducted in 1991, and was the first such survey ever attempted. It would provide a valuable profile of lifestyles, living conditions, health, employment history, schooling, mobility, and languages. The agency approached Canada's national Aboriginal organizations to ask for their support and participation and to get their input on what information should be collected. Representatives from regional and national Indian, Métis and Inuit organizations, as well as those from the federal, provincial and territorial governments, and numerous research and service organizations actively participated in the content development.



mail the questionnaire to the right household. The coverage and quality of the Address Register would improve over ensuing years, until it was of sufficient quality to be used as the basis for the mailing-out of census questionnaires in 2006.

The corporate Business Register, a centrally maintained database containing detailed descriptions of most business entities operating within Canada, also continued to be improved. It would, however, not achieve its full potential until the late 2000s. Statistics Canada took leadership in creating a forum for the international exchange of experience in the area of business registers. The first meeting was held in Ottawa in 1986, with the group referred to originally as the "Roundtable of Business Survey Frames." It was renamed as the Wiesbaden Group on Business Registers in 2007, when it met in Wiesbaden, Germany, to align with the naming convention of other city groups.



The core team involved in creating Statistics Canada's new Address Register, 1991

The monthly surveys of retail and wholesale trade were the first to use the new Business Register, in 1988. In fact, among the first changes from the Business Survey Redesign Project was a redesign of the Retail Trade Survey to provide better estimates of retail trade activity. The newly redesigned survey would draw its sample from the new Business Register. The next to be added to the Business Register would be the Survey of Employment, Payrolls and Hours. By the end of 1989, most annual surveys would be tied into the Register.

One such survey, the Survey of Employment, Payrolls and Hours, took more than three years, beginning in 1989, to convert to the Business Register. A team of researchers, developers, and support staff worked on this project, which was so large and so complex that it was named "the Big Bang Project."

The work consisted in linking the survey to the new Business Register, smoothing data breaks in the time series, converting data series to the 1980 standard industrial classification, producing seasonally adjusted data, and

creating new information products to help users understand the revised data. The redesign was completed in 1994, and it would make use of administrative data on small businesses that were newly available from Revenue Canada's payroll deduction form on the number of employees and monthly payroll. The additional variables were obtained from a small overlap survey done by computer-assisted telephone interviewing of 2,500 businesses. Before the redesign, 30,000 businesses would have been surveyed.

The use of tax records also reduced operating costs by about $0.9 million per year. When the survey was originally designed, in the late 1970s, using administrative data was actually recommended at the time. However, the momentum had not been there to carry through with the recommendation. Contributing to this lack of momentum for an earlier redesign was the agency's relatively poor relationship with other agencies in the late 1970s.



Employees of the Survey of Employment, Payrolls and Hours redesign, 1994

A GIANT DEMOGRAPHIC STEP FORWARD

Historically, the population between censuses was estimated, using as a base population the census counts from the previous census, and the annual number of births, deaths, and international and interprovincial migrations. Then, each time a new census was conducted, the population estimates between the previous and the new census were recalibrated. The difference between the population estimates produced on the basis of the previous census and the new census counts were often a source of grief for demographers seeking to explain the disparity between the two data sources.

Since the 1966 Census, the agency has published estimates of census undercoverage based on a sample, allowing for a measure of how many people were missed by the census. In the early years, these results were not considered reliable enough to be used to adjust population estimates. From 1971, the process of producing these undercoverage estimates became strong enough to support adjustments to provincial population estimates.

Since the 1991 Census, overcoverage started being measured, as some people might be enumerated more than once in the census. The measurement of census undercoverage and overcoverage led the agency to publish estimates of census net undercoverage. While census counts are never adjusted for net undercoverage, the population estimates produced on a quarterly basis have been adjusted since that time.

Statistics Canada's population estimates are used for managing transfer payments, a very important exercise as billions of dollars are transferred to the provinces and territories through equalization and other transfer programs, which enable them to provide reasonably comparable programs and services. Because changes to population estimates can result in more or less money transferred to provincial and territorial governments, Statistics Canada regularly meets with those governments to explain census methods and results, including the coverage studies and the population estimates following each census.



Environment

The topic of the environment was coming to the forefront, in terms of both data needs and daily working life in the public service. In the 1960s, Rachel Carson's revolutionary book *Silent Spring* and issues such as acid rain spawned a new era of environmental awareness. The *Department of the Environment Act* established Environment Canada in 1971 in recognition of the need for better environmental management. The agency's environment statistics program was established in the mid-1970s, and at the time it was associated with a program on the development of social indicators. A multi-disciplinary research team of geographers, biologists and economists collaborated to develop the databases that would be required to analyze the interaction between people and their environment.

In 1989/1990, with funding received via Data Gaps I, the agency was developing statistics to assess and track the state of Canada's environment. An August 1989 SCAN article cites that "a new breed of 'environmental statisticians' emerged," housed in the environment and natural resources section of the Analytical Studies Branch. The agency's data on population, agriculture and manufacturing were reorganized by watershed and river basin, to assist users conducting environmental studies in local areas. Data on environmental quality and natural resources were drawn from Environment Canada, Agriculture Canada, and Energy, Mines and Resources, as well as from provincial and territorial environment departments, and integrated into the agency's socio-economic databases. A framework, referred to as the stress-response environmental statistical system (STRESS), was developed and became the basis for the United Nations' statistical framework for the development of environmental statistics. Two important agency publications at this time were the first *State of the Environment Report for Canada*, written and jointly published with Environment Canada and first released in 1986 at a press conference by then-Minister of the Environment Tom McMillan; and the compendium called *Human Activity and the Environment*, first published in 1978.

In 1992, the agency received funding through "The Green Plan" for an environmental satellite account program. The Green Plan was an environmental action plan launched by the federal government in 1990 as a national strategy and action plan for sustainable development. It also provided funding for various initiatives over the following five years. The government called upon Statistics Canada to supply a set of indicators to present the state of the environment. In 1993, a National Round Table on the Environment and the Economy would be convened. The agency would rename its Income and Expenditure Accounts Division "National Accounts and Environment Division," and began work toward a satellite account for natural resources. An ad hoc working group was formed in 1993 as another city group to tackle the difficult conceptual issues to do with measuring the environment—the London Group on Environmental Statistics, that first met in London, England, in March 1994. It continues to meet annually as a forum for review, comparison, and discussion of work under way in the area of environmental accounts.

RECYCLING COMES TO THE AGENCY

At the agency, a recycling program had begun many years earlier, in 1976. The program relied upon wooden desktop holders to collect paper. The downfall was that they did not hold much paper and had to be emptied in hallway bins, something that apparently did not happen very often. Soon enough, the nice wooden holders became handy places for telephone directories and computer disks.

By the early 1990s, blue box programs were being introduced across the country, and the agency, too, was beginning to introduce paper recycling and promoting cognizance of an environmentally-friendly workplace. In fact, the use of microfilm was being touted as a way to reduce paper use. When employees submitted jobs to the main computer centre to produce their data, they could choose to have the output produced on microfiche instead of paper. The computer output was usually delivered within a day or two.



The "Green" task force members, 1991

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CHAPTER 5

A lasting legacy: 1995 to 2008

PRIVACY CONCERNS COME TO THE FOREFRONT

As it did when computers were first emerging a few decades earlier, the issue of privacy again came to the forefront, this time as a result of the emergence of the Internet and the resulting proliferation of available information. At the same time, the growth of computing power was providing the opportunity to link data to vastly increase their power and utility, and to decrease the cost and respondent burden associated with data collection.

The concept and power of record linkage had been recognized as early as 1946, when it was the subject of an analytical report published by the Dominion Bureau of Statistics, in reference to the requirements of family allowance legislation or insurance for proof of age, birth order or death. The report began: "Each person in the world creates a Book of Life. This Book starts with birth and ends with death. Its pages are made up of the records of the principal events in life. Record linkage is the name given to the process of assembling the pages of this Book into a volume." While the concept of individual privacy had not yet arisen in 1946, it is now recognized that the linking of records intrudes on privacy by its nature. Thus, beginning in the mid-1980s, the agency established policies and directives on record linkage to ensure the practice occurred only when the public good was clear and outweighed the necessary privacy intrusion.

In the statistical context, privacy provides respondents with protection against intrusive enquiries and with some controls over information about themselves. Confidentiality, on the other hand, refers to keeping information from being revealed in an identifiable manner to any unauthorized person. Both the *Privacy Act* and the *Statistics Act* confer an obligation on Statistics Canada to protect the confidentiality of information. In 1998, a request for client information under the *Access to Information Act*, along with the increased use of Statistics Canada's website by commercial clients and other visitors, prompted the development of the Client Information Policy to clearly delineate the agency's practices with respect to client information.

In line with the requirements of the *Privacy Act* that provide individuals the right to know why and for what purpose personal information is collected, the agency developed the Policy on Informing Survey Respondents in 1998. This ensured that respondents were fully informed of the expected use of the information they provided, the authority under which any given survey was taken, the confidentiality protection afforded to their responses and the existence of any related data sharing agreements.

Other ways in which the agency seeks to avoid unwanted invasions of privacy include making all of its household surveys voluntary, with the exception of the Labour Force Survey and the census, so Canadians have a choice not to participate if they feel their privacy is being infringed upon. The agency also carefully reviews the questions it asks to avoid, or handle with the utmost care, any actual or perceived invasions of privacy.

In 2004, Lockheed Martin Canada—a global security and aerospace company—was successful in an open-bid process for a contract to process the 2006 Census test data. Under North American Free Trade Agreement rules, Canadian, American and Mexican companies were eligible to apply for the contract. Concerns began to be expressed by Canadians and their members of Parliament about information potentially being accessible by Lockheed Martin Canada's U.S. parent company. While the company had no access to census returns, either at the data operations centre or through the

THE CONCEPT OF INDIVIDUAL PRIVACY HAD NOT YET ARISEN IN 1946, IT IS NOW RECOGNIZED THAT THE LINKING OF RECORDS INTRUDES ON PRIVACY BY ITS NATURE

agency's census response database, the agency nonetheless reduced the scope of the company's involvement to assuage the public's concerns. The contract was revised so that the company was no longer responsible for processing the data but would continue to provide hardware, software, printing and support services. All processing was carried out exclusively by agency employees on agency premises.

The *Statistics Act* is amended

Historical and genealogical researchers have long used historical census information to tell the story of yesteryear and analyze the transformation of societies over time. Records from historical censuses were routinely declassified and transferred to the public archives for research, including the 1891 and 1901 censuses, which were released in 1983 and 1993, 92 years after their collection.

However, in 1998, the 1906 records were not released as scheduled. The 1906 Census was a particular census restricted to the "Northwest Provinces" of Manitoba, Saskatchewan and Alberta. While wooing Alberta and Saskatchewan to join Confederation, then Prime Minister Sir Wilfrid Laurier indicated that all census data collected would remain confidential. The 1906 Census captured Western Canada at a key point in its development: Saskatchewan and Alberta had just joined Confederation the previous year, and the population of Western Canada was rising rapidly. In fact, the 1906 Census found a 93% increase in population compared with five years earlier. The regulations under the statistical legislation of the time (the *Census and Statistics Act* of 1905) required the census enumerators to assure people that their information would never be released, except to those accessing their own information. Interestingly, the instructions for enumerators suggest that such confidentiality provisions were aimed at census enumerators and were designed to reassure citizens that census information would not be shared with tax collectors, for example. Recall that as far back as 1851, there was a general belief that the census had some direct or indirect connection to taxation or even military conscription.

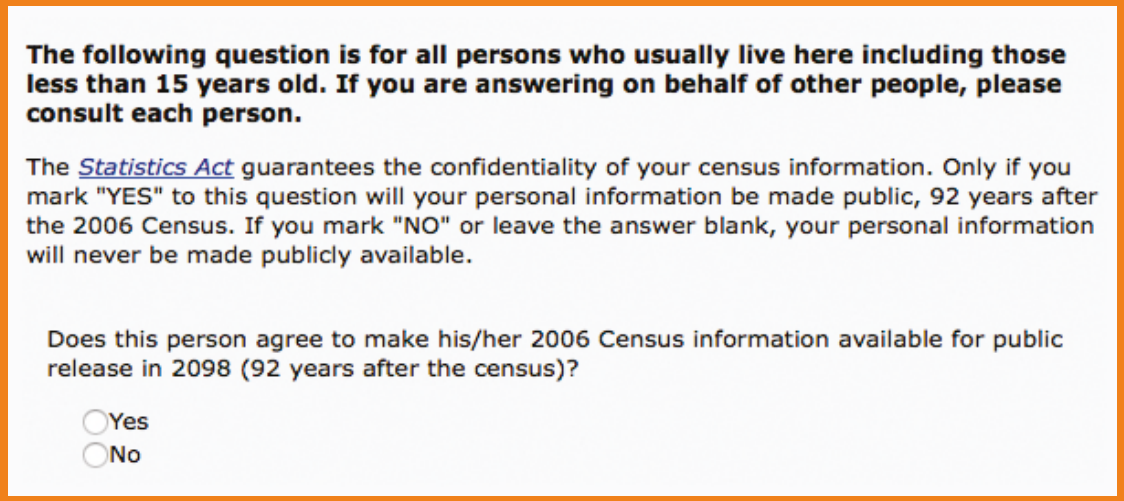
When the *Act respecting the Dominion Bureau of Statistics* was written in 1918 by R.H. Coats largely as a consolidation of previous statistical legislation, it codified these earlier confidentiality provisions into law. As a result, subsequent censuses were conducted under legislation that did not include any provision for declassification and release. In fact, legal opinion from the Department of Justice concluded that these later censuses were conducted under changes to the law that guaranteed that the information would never be shown to any other person. The potential therefore existed that no further censuses would ever be released again.

In 1996, researchers were beginning to lobby various ministers, including the Minister Responsible for Statistics Canada and the Minister of Canadian Heritage, as well as the Chief Statistician and local members of

Parliament, to allow the release of historical records. Some of the ambiguity with respect to their release was a result of the more recent *Privacy Act* of 1983, which provided for the release of census records after a 92-year waiting period. That act, however, also stipulated that where other acts provided specific protection to personal records, the provisions of other acts were to prevail.

In 1999, to resolve the ambiguity, the Minister Responsible for Statistics Canada (the Honourable John Manley) established the Expert Panel on Access to Historical Census Records, to provide independent and expert advice on the legal, privacy and archival implications of releasing census records. The panel was chaired by Dr. Richard Van Loon, President of Carleton University, and also comprised the Honourable Lorna Marsden, President and Vice-Chancellor of York University; Professor Chad Gaffield of the University of Ottawa; Professor John McCamus of Osgoode Hall Law School; and the Honourable Gérard La Forest, retired Supreme Court of Canada judge. The panel concluded in its June 2000 report that no perpetual guarantee of confidentiality was ever intended to be attached to census records, that the passage of time diminished concerns about individual privacy and that the value of public access to the records took precedence after a sufficient period of time (92 years was agreed to suffice). It was further recommended that all Canadians be informed that the guarantee of confidentiality with respect to future censuses endured for only 92 years. After a review of the expert panel's report, the Department of Justice reassessed its previous advice and considered that release of the census records from 1906, 1911 and 1916 was indeed possible, even without an amendment to the *Statistics Act*. However, an amendment to the *Statistics Act* was recommended for greater clarity, as well as to allow the future release of data from 1921 onward. In fact, the 1906 records were released to the National Archives in 2003.

At the time, the Privacy Commissioner of Canada was opposed to the release of census records, as well as their transfer to the National Archives, and Statistics Canada was nervous that the statistical system could be negatively affected by the release of the historical census records, especially since the 2001 Census was imminent. The agency believed there was a risk that participation in the census might be jeopardized. This was further substantiated by public opinion research undertaken in 2000, which suggested that Canadians disapproved of retroactive amendments to the confidentiality provisions of the act and that this would make them less likely to answer or provide accurate responses to the next census.



The following question is for all persons who usually live here including those less than 15 years old. If you are answering on behalf of other people, please consult each person.

The *Statistics Act* guarantees the confidentiality of your census information. Only if you mark "YES" to this question will your personal information be made public, 92 years after the 2006 Census. If you mark "NO" or leave the answer blank, your personal information will never be made publicly available.

Does this person agree to make his/her 2006 Census information available for public release in 2098 (92 years after the census)?

- Yes
- No

Question on the release of personal information after 92 years, 2006 Census

A number of bills were introduced in the early 2000s that proposed removing the legal ambiguities in the *Statistics Act.* After two were unsuccessful, Bill S-18 was assented to in 2005. It proposed permitting the declassification and transfer to the archives of census records taken between 1910 and 2005, 92 years after each census, and proposed that starting with the 2006 Census, Canadians be asked for consent to release their records after 92 years. It was felt that the latter stipulation was required to temper the perception that the release of old census records could be seen as removing a guarantee by the government, and to not jeopardize census compliance. The enactment also called for a review of the administration of that requirement to determine how Canadians responded and whether further change was required. The need to request consent would later be removed in 2017 as part of a future modernization of the act.

Privacy changes in the Census Program

In 1991, despite assurances of confidentiality, respondents voiced concerns that their census forms were received and reviewed by a local census representative who could very well be a neighbour. For the 1996 Census, a test was conducted in eastern Ontario whereby completed forms could be mailed to a district office instead of provided to a local census representative, and any necessary follow-up was carried out by telephone by anonymous interviewers. It was determined that the approach was too operationally risky to be used nationally for 2001. Such a system, however, would eventually be adopted for 2006.

In fact, the 2006 Census embodied a number of important changes that resulted in greater privacy protection. For example, a new Internet response option was introduced, which 2.26 million households took advantage of. As well, while the Canada Revenue Agency had been contracted to manually key all responses in previous censuses, the adoption of automated character recognition technology meant that all returns could be fully processed in-house at the agency's data processing centre. A master list of dwellings was also introduced for all of Canada—and the agency mailed questionnaires to 73% of them. The need for local enumerators to carry out manual edits and follow-up with respondents was mostly eliminated, with follow-up carried out by computer-assisted telephone interviewing from three call centres. As a result, instead of 50,000 field staff, only about 27,000 were required.



Hot air balloon marking the beginning of 1991 Census data collection activities

Privacy impact assessments are introduced

A new government-wide policy in 2002 required all federal institutions to develop and maintain privacy impact assessments (PIAs) to evaluate whether programs or services comply with privacy requirements. The process would assess the privacy, confidentiality and security risks involved with the collection, use or disclosure of information, and allow the development of mitigation measures to avoid or reduce those risks. Statistics Canada formed the Privacy Impact Assessment Review Group to develop an agency-specific policy to meet the requirements of the new policy. The agency's policy was finalized in 2005, along with a generic PIA to address the majority of survey collections undertaken under the authority of the *Statistics Act*.



New online response option, 2006 Census

One mortal sin

In January 2006, as part of his annual address to all staff, Dr. Ivan Fellegi addressed the importance of confidentiality at the agency by reminding employees that "there is only one mortal sin in Statistics Canada and that is to not protect respondent information."

Ensuring confidentiality had become a lot more difficult with the increased use of computers and processing power, and with greater demand for access to microdata for more sophisticated research. While the agency aspires to release as much data as it can, it must continue to protect the confidentiality of individuals and their businesses.

A task force of middle managers was set up in the fall of 2005 to recommend measures to ensure employees' continued awareness of their responsibilities with respect to the confidentiality of information. One of the recommendations was to launch an agency-wide confidentiality awareness program, which constituted a first step of mandatory computer-based training within the first three months of employment. Similar training was available to continuing staff and was linked to the renewal of employee identification cards every three years. The role of Confidentiality Awareness Coordinator was assigned to the

JOB SHORTAGES MAKE FOR A NIMBLE PROGRAM

In spite of the agency needing fewer field staff than anticipated for the 2006 Census, hiring and retention of staff was challenging. Only about 17,000 staff could be hired, as the labour market was saturated in urban centres—particularly in many parts of Alberta. Alberta was in the midst of the strongest period of economic growth ever recorded by a province. In fact, over a mere three years (from 2002 to 2005), its gross domestic product in current dollars rose by 43%. It had the highest wages in Canada, resulting in growing shortages of labour and housing. The 2006 Census would find that Alberta's population had grown at a rate of 10.6% since 2001, almost twice the national rate. As a result, the collection period was extended, and staff, including permanent Central Region staff, were deployed to various regions to help alleviate shortages. Follow-up was reduced and targeted to manage the financial fallout.



Employees in front of a 2006 Census recruitment kiosk, Montréal, 2005

ALL DEPARTING EMPLOYEES WOULD BE REMINDED OF THEIR LIFELONG OBLIGATION TO ABIDE BY THE OATH, EVEN AFTER LEAVING THE AGENCY



Confidentiality awareness campaign for employees, 2007

Director of the Data Access and Control Services Division to oversee all activities related to confidentiality awareness. An Internal Communications Network page was also developed to provide centralized access to information on confidentiality, including best practices and responsibilities. New procedures for administering the oath of secrecy required directors to personally administer the oath on employees' first day of employment. As well, all departing employees would be reminded of their lifelong obligation to abide by the oath, even after leaving the agency.

MANAGEMENT INITIATIVES

Navigating the budgetary tides

One of the constant challenges of a centralized statistical agency is to marry the many different signals of user demand with the budgetary framework provided by the government. This is especially challenging in times of budgetary reduction—and the agency had seen a 10% reduction in its personnel from 1985 to 1995, on top of the 20% reduction that happened in the late 1970s. The agency's robust planning methods were integral to navigating the times and had continued to be refined since the corporate planning process was first implemented in the early 1980s. By the mid-1990s, this process involved preparing annual reports on each program, reviewing and updating strategic long-term (five-year) directions and priorities, conducting operational planning, and examining specific proposals and making decisions about them. This was also integrated with an annual submission to the Treasury Board covering resource requirements for the next three years, called the multi-year operational plan.

The planning process became known as the long-term planning (LTP) process in the late 1980s. Following submissions of annual program reports each spring, a formal review of strategic priorities and directions would be undertaken by each field over the summertime, culminating in a strategic planning conference in the fall. At this conference, long-term plans were brought forward, including proposals for new initiatives and any opportunities for efficiencies. The lowest-priority programs were identified for possible reduction or cancellation. Human resources and business planning were involved to allow decisions to

be taken based on all resource requirements and risks. Proposals were then reviewed, and the Corporate Planning Committee took final decisions on strategic priorities in the new year. The LTP process eventually gave way to the Integrated Strategic Planning Process in 2011, which extended the planning horizon to 10 years and continued to guide and streamline the agency's strategic planning priorities and resource allocation.

A collaborative solution to strategic direction

In 1995, the Clerk of the Privy Council, Jocelyne Bourgon, launched a series of nine task forces led by deputy ministers to explore a variety of issues that had been identified through program reviews. Dr. Fellegi chaired the Task Force on Strengthening the Policy Capacity of the Federal Government, tasked with reviewing Canada's policy development capacity and recommending improvements. The task force produced a report published in December 1996, which became widely known as the Fellegi Report. One of its themes was "the need for more attention to longer-term and strategic issues, including the major horizontal issues cutting across departments, and better interdepartmental forums for considering such issues." In fact, all of the task forces pointed to a need for horizontal integration. This led to the creation of the Policy Research Secretariat—later renamed the Policy Research Initiative (PRI)—which was launched in 1996 in the Privy Council Office to foster collaboration across the public service and identify key issues related to the government's policy agenda. It began as an interdepartmental committee of assistant deputy ministers from over 30 departments and agencies.

In 1998, the role of the PRI changed from a facilitator to a leader in horizontal research projects. One of the ways in which it contributed to horizontal research collaboration was through its leadership of a new interdepartmental committee called the Policy Research Data Group (PRDG). The group consisted of about 25 policy departments and central agencies that focused on identifying data gaps and areas for potential collaboration in priority horizontal policy areas. The PRDG managed a special venture capital fund of about $20 million per year that was available for experimental statistical projects with fixed lifespans. They would be funded for four years on the condition that if they were successful, a policy department would choose to fund them in the longer run or they would be dropped. The priority data projects were thus identified by the group, and then the data were developed by Statistics Canada under what the agency referred to as the Data Gaps II initiative. The PRDG offered an important forum for collaborating and sharing funds on projects of common interest, and facilitated the establishment of priorities.

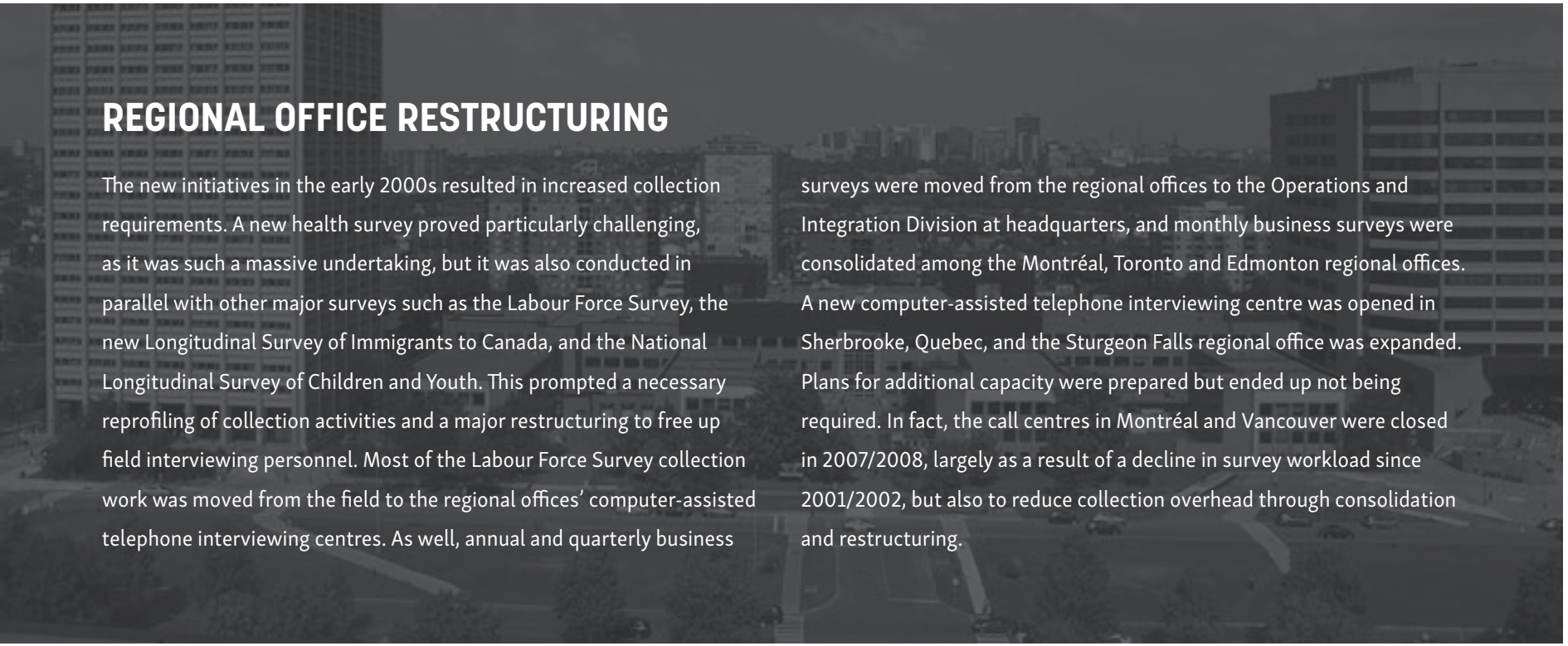
Some of the funding for the Data Gaps II initiative for fiscal year 1998/1999 covered the continued funding of the Environment Statistics Program (its historical funding had come from the now-expired Green Plan), along with some other developmental work. Each Data Gaps II project had a lead department, and the agency signed memoranda of understanding with each of these departments. The main projects funded by the initiative included the new Longitudinal Survey of Immigrants to Canada, the Survey of Financial Security, investment in environment and education statistics, information on hate-motivated crime and diversity in the Canadian justice system, the Workplace and Employee Survey, the Labour Cost Index, the reconciliation and improvement of the international merchandise trade data, investment in science and technology statistics, and information on the extent and use of Internet-based communication and commerce.

Strategic streamlining initiatives help relieve pressure

In September 2002, six strategic streamlining initiatives were launched at the agency to relieve increasing budgetary pressures by identifying efficiencies in workflows and operations across the organization. One of the reasons for these pressures was that costs related to both field travel and employee benefits were increasing, and the agency's budget had not been increased to compensate. As well, the agency had grown by 20% over the previous five years.

The initiatives looked critically at processes that added relatively little value to outputs and activities that could be performed at a less detailed or complex level. They also examined opportunities to use less expensive inputs, such as a greater use of administrative data in lieu of survey data. The intent was to return to the more normal pace from before the rapid expansion that came about over the previous five years.

Some of the key initiatives were conducting a business survey review looking at efficiencies to be gained in workflows and processes, increasing the use of tax data to reduce respondent burden and costs, improving and increasing the use of computer-assisted telephone interviewing to streamline collection of household surveys, reviewing the replacement cycle for computer workstations, and restructuring the regional offices. In the spring of 2003, the agency began consolidating the management and administrative overhead for its regional offices so that regional directors and some of their administrative staff would



REGIONAL OFFICE RESTRUCTURING

The new initiatives in the early 2000s resulted in increased collection requirements. A new health survey proved particularly challenging, as it was such a massive undertaking, but it was also conducted in parallel with other major surveys such as the Labour Force Survey, the new Longitudinal Survey of Immigrants to Canada, and the National Longitudinal Survey of Children and Youth. This prompted a necessary reprofiling of collection activities and a major restructuring to free up field interviewing personnel. Most of the Labour Force Survey collection work was moved from the field to the regional offices' computer-assisted telephone interviewing centres. As well, annual and quarterly business surveys were moved from the regional offices to the Operations and Integration Division at headquarters, and monthly business surveys were consolidated among the Montréal, Toronto and Edmonton regional offices. A new computer-assisted telephone interviewing centre was opened in Sherbrooke, Quebec, and the Sturgeon Falls regional office was expanded. Plans for additional capacity were prepared but ended up not being required. In fact, the call centres in Montréal and Vancouver were closed in 2007/2008, largely as a result of a decline in survey workload since 2001/2002, but also to reduce collection overhead through consolidation and restructuring.

be located in three areas: Eastern, Central and Western regions. All nine offices remained open, and front-line operations remained essentially the same—but some activities were realigned to even out the workload and staff between the three regions.

By 2004, the agency was entering a period of greater financial tightness as a result of budget cuts and new collective agreements. Departments were asked to provide proposals for cutting their lowest-priority programs to reduce their operating budgets by a further 5%, which would be phased in over three years. In preparation for the budget decisions, the agency was continuing with its strategic streamlining initiatives, which in this new environment now needed to go beyond garnering efficiencies. The agency also reduced its recruitment to a minimum and was beginning to look at statistical programs that could be candidates for elimination should this become necessary. With an annual turnover rate of about 4%, the agency was committed to achieving its potential reduction in staffing levels without layoffs. It was planning to achieve its cuts through staff turnover, redeployment and training, especially given that the peak workload of the 2006 Census would soon provide additional possibilities for absorbing staff.

Under a new mandate to undertake cyclical expenditure management reviews of all departments, agencies and programs, the Treasury Board undertook a major review of the agency from June 2003 to November 2004. The agency received top marks for overall management practices, including planning, human resources and finance. The review also underlined the agency's focus on relevance, as well as its limited flexibility for budget reallocation or for new information requests because of its legislative, regulatory and contractual obligations. It encouraged the agency to continue its current efforts at opening lines of communication with other departments and agencies and recommended that the Treasury Board develop a more coherent and timely funding process for the Census of Population and recommended earlier Cabinet engagement on its scope and overall budget.

The government's expenditure review eventually exempted the agency from budgetary cutbacks, and hiring was restarted in 2006. The rollercoaster continued, however, with a new budgetary review (the 2007 Strategic Program Review) by a blue ribbon panel the following year. Programs that had legal requirements and those that involved agreements with the provinces were exempted from the scope of the review. The panel categorized the agency's programs by how it believed they served the public interest. Some of the programs had come about as a result of the Data Gaps II initiative, and some were specific to certain policy departments. Funding for Data Gaps II was conditionally renewed in 2007 for four years, subject to the outcome of the review.

The outcome of the Strategic Program Review was a budget reduction of $21.5 million. Five surveys were discontinued, the Canadian Community Health Survey cycle was reduced to every three years instead of every two, the annual report on the Canadian Environmental Sustainability Indicators was discontinued, and the PRDG investment fund was reduced by 80%, leaving $2.4 million annually for new projects. Most of the projects funded by the PRDG fund at the time were discontinued according to their existing schedules over the following three years. A few of the projects continued to be funded, as they were determined to be fundamental to the national statistical system.

A renewed focus on quality

In 1997, an audit on data quality management by the Office of the Auditor General (OAG) reinvigorated the agency's focus on quality. In preparation for the audit, the agency summarized its existing quality management

practices into the Quality Assurance Framework, which defined data quality along six dimensions: accuracy, relevance, timeliness, accessibility, interpretability and coherence. The framework was used to conduct assessments of four programs at the agency for the audit, after which the OAG recommended it be applied to the entirety of the statistical program. A team of experts from the International Monetary Fund (IMF) was at Statistics Canada in January 2003 to assess Canada's compliance with the Special Data Dissemination Standard. This new standard had been established by the IMF in 1996 in the wake of recent financial turmoil, as a guide for countries providing economic and financial data to the public. It covered several dimensions of quality, as well as prescribed fundamental rules of behaviour for statistical offices. The team found the agency's Quality Assurance Framework to be "commendably complete and (an) effective example of quality assurance practice."

The OAG also recommended the agency-wide adoption of a reporting mechanism. In response, the agency put in place a formal and integrated program reporting mechanism, through which programs reported on relevance, quality, costs, human resources management and strategic direction. It included an extensive quadrennial review and a shorter biennial report on performance, direction and any proposals for change in between. To respond to one of the observations from the OAG that the information the agency provided to the public on the quality of its statistics was inconsistent, a proposal to create a quality secretariat was brought forward. The secretariat would monitor, on behalf of the Methods and Standards Committee, information provided to clients about the quality of statistical products. The Quality Secretariat was established in 2000 to develop and support some of the agency's key quality management policies and practices, develop and manage quality management reviews, and provide advice on quality management to programs.

With the increased use of electronic databases, the agency started to invest resources in the late 1990s in developing metadata for data users, including details about underlying concepts, collection methodology and data limitations. Two fundamental priorities guided the process: the new database needed to be comprehensive in coverage and it needed to be driven by what clients were likely to want rather than what the agency thought they should know. The Integrated Metadatabase (commonly referred to as the IMDB) was implemented in November 2000, initially with documentation describing data sources and methods. It was later expanded to include the definitions of concepts and variables used in the statistical programs.

In 2005 and 2006, three serious errors were discovered after data were released, the most serious of which affected the Consumer Price Index (CPI). Statistics Canada has a long-standing practice of never revising the CPI, which makes the index quite valuable to those who link or index various contracts to its movements over time. However, this also means that there is absolutely no room for error. The income tax brackets are adjusted every year for inflation using the CPI, as are pension payments, labour contracts, rent increases, and large financial contracts such as government and private sector bond and debenture issuances. The potential consequences of an error are thus widespread and enormous.

The error was found to have been a programming error introduced five years earlier, when a new methodology was adopted for the traveller accommodation price index. This error was estimated to have caused the annual average change in the CPI to be understated by 0.1% every year from 2001 to 2005. The mistake was corrected going forward, but was not revised backward. As a result, by the time the error was discovered, the CPI had

cumulatively risen by 0.5% less than it should have over that period.

When the agency discovered the error in 2005, it was not immediately transparent. The admission eventually appeared in a two-sentence footnote in a monthly publication in July 2005, which made no explicit mention of an error and was interpreted as an attempt to downplay the situation. The issue caused considerable embarrassment for the agency when it became public a month later, with some calling it the biggest mistake in the agency's history. The error and the agency's handling of it led to widespread coverage in the media and in Parliament. Members of Parliament and government departments received countless letters of protest.

Having prided itself on its data quality assurance practices, especially after having put in place the Quality Assurance Framework and Quality Secretariat, the agency was quite shaken by the incident. The Quality Assurance Task Force, led by a committee of directors general, was struck to conduct a comprehensive review to identify weaknesses and underlying factors,



Employees proudly holding their certificates recognizing 20 or more years of service in Regional Operations Branch

and identify best practices that should be applied across all programs at the agency. The review, which was launched in September 2006, covered nine of the most critical programs: the Labour Force Survey, the Monthly Retail Trade Survey, the Monthly Survey of Manufacturing, the CPI, International Trade, Gross Domestic Product by Industry, the National Income and Expenditure Accounts, Labour Productivity, and the Balance of Payments. A 10th program, the dissemination and communications program, was also added, as the review focused on accuracy in the execution of the programs, particularly in their later stages. Because the review was to be undertaken within four months, 10 separate teams were formed to carry out the review.

By February 2007, the review had found areas where further investments would strengthen quality assurance practices and identified best practices that were shared with other programs. The results and measures taken were made public in *The Daily* on June 4, 2007. One of the recommendations was the development of the Quality Incident Response Plan, with standard procedures to follow in the wake of data quality incidents. As a result, since 2006/2007, the Quality Secretariat has monitored corrections to *The Daily* in terms of reloads (after release) and preloads (within 24 hours prior to release).

The agency also completed a large-scale quality assurance learning exercise, which was mandatory for all staff at the unit head level and above involved in data production.

The agency learned a number of valuable lessons as a result of the CPI error, and not just with respect to not letting its guard down when implementing changes to programs or in quality assurance practices. Just as importantly, it was reminded of the need to communicate transparently and openly admit when it is wrong and explain the situation. The agency's culture was permanently shaped by the event.

A new government-wide focus on strengthening oversight and accountability led to a revised governmental Policy on Internal Audit in 2006. As a result, the agency invested to bring its internal audit function in line with these new policy requirements. By April 2009, when the policy would come into force, the agency was required to have an audit committee composed of professional and experienced members drawn largely from outside the public service, and to have auditable financial statements. In 2009, the agency established the Departmental Audit Committee, composed of three independent members from outside the public service, as well as a chief audit executive who would report directly to the Chief Statistician. The new committee would provide the Chief Statistician with independent, objective advice and guidance, as well as assurance on the adequacy of the agency's control and accountability frameworks.

A modernized public service

A number of influential reports, including an Auditor General's report from 2000, which criticized the inflexibility of human resources (HR) management in the public service, led to a commitment to change in the 2001 Speech from the Throne and the creation of the Task Force on Modernizing Human Resources Management in the Public Service. A new model was developed, and November 2003 marked the passing of the *Public Service Modernization Act*. The law, described as the single biggest change to public service HR management in over 35 years, came into force over the following two years. The act created or revised key pieces of legislation, including creating the new *Public Service Employment Act* (PSEA) to address staffing, employment and political activities; creating the new *Public Service Labour Relations Act* (PSLRA) to address labour relations, collective bargaining and the resolution of related disputes; amending the *Financial Administration Act* to address authority and accountability; and amending the

IN 2005, THE NEW PERFORMANCE MANAGEMENT STEERING COMMITTEE WAS FORMED TO ASSESS PERFORMANCE MANAGEMENT PRACTICES

Canadian Centre for Management Development Act, which would be renamed the *Canada School of Public Service Act*, to address learning and development. This wide-ranging reform of HR management in the public service changed the way the government hired, managed and supported its employees. It modernized the staffing system, fostered better labour-management relations and implemented a more corporate approach to learning by creating the new Canada School of Public Service.

The Senior Steering Committee on Staffing at Statistics Canada took the lead on the plan to carry out the necessary changes at the agency, while management, union and HR working groups were formed to develop strategies, policies and procedures. One of the changes for the agency stemming from the new PSLRA was a move away from formal internal grievances toward resolving issues with alternative dispute resolution before they became formal complaints. To this end, the agency and the local unions co-developed a policy and procedures for a new informal conflict management system to help employees confront and resolve difficult situations.

The new PSEA was based more on values than rules. As a result, candidates in competitions would no longer be ranked (and employers would no longer have to appoint people in the order in which they were ranked) — a pool of candidates would be established from which any of the qualified candidates could be selected.

A new performance management program was also introduced as a result of a long-standing feeling among senior managers that the agency could do a better job setting explicit goals for employees and assessing their performance frankly and fairly. As noted in Chapter 2, the process at the agency in the 1970s had been rather labour intensive and therefore costly, with supervisors required to complete long forms every year — the whole process was widely seen as ineffective. This was later replaced by a less bureaucratic exercise that encouraged more frank and direct face-to-face discussions between employees and supervisors. These petered out a bit in the late 1990s and early 2000s, and many felt it was time for a renewal. Thus, in 2005, the new Performance Management Steering Committee was formed to assess performance management practices. The new program increased support for managers in addressing cases of poor performance and improved goal-setting, assessment and feedback for employees. A new course for supervisors called Improving Employee Performance was developed, and greater capacity was established within HR to help supervisors deal with performance management cases. A performance management site was also launched on the internal network.



Dr. Ivan P. Fellegi being interviewed by SCAN, 1997

An increased focus on analysis

The agency's focus on analysis was aligned with the government's focus on quantitatively informed policy development. If there was ever any doubt that nothing is ever new or that what goes around comes around, Dr. Fellegi remarked more than 20 years ago in the 1997 special issue of *Scan* that "From the agency's point of view, the most important shift is a greater recognition of the importance of 'evidence-based decision making,' a catch phrase that's coming to the fore in this area. What it means is that decisions should be based on relevant and accurate information rather than on hunches or outdated theories…" The ongoing struggle for any statistical agency is the permanent tension between the need to publish timely analysis on policy-relevant topics and the need to ensure the impartiality and objectivity of that analysis. Sometimes even the choice of topic for analysis can be seen as a subjective decision—and this applies even to research conducted in the agency's research data centres by non-public servants. To use the data held in the data centres, the research must be within the realm of study that could conceivably be conducted by Statistics Canada.

The research data centres were one way of encouraging Canadian social science researchers to use Canadian data. Another way was through the establishment of a new fellowship program, whereby, each year, about eight fellowships would be granted to enable young researchers to work at the agency on doctoral or postdoctoral projects. The success of these programs was evident, in that researchers were increasingly teaming up with Statistics Canada even outside the program. A number of other initiatives were undertaken over the years to promote research and analysis. For example, in 1999, the agency began offering a research stipend for access to longitudinal survey data to PhD students to promote not only the agency at large but also an awareness of the value of these new social surveys to the general research community.

The year 2000 marked the germination of what was then being referred to as the Economic Research Institute to attract researchers to work with business microdata, similar to the research data centres for social files. Issues of confidentiality are very different for business data compared with household data—it is virtually impossible to "disguise" a very large business within a dataset. Households, on the other hand, tend to be more similar, more numerous and more easily disguised within datasets by removing names, addresses or other identifiers. The potential for misuse

of business microdata for commercial gain is also significantly greater than for household data. The idea would not come to fruition until 2012, when the Canadian Centre for Data Development and Economic Research was established.

Remote access to data was also proving to be extremely helpful in increasing the volume and breadth of analysis conducted by external researchers. This was an innovative initiative that provided researchers with a dummy file structured in the same way as the given survey data, but with fictitious, non-confidential data. Researchers would use the dummy data to formulate their analysis plans and computer programs. They would then submit the programs to Statistics Canada, which would run them, vet the output for confidentiality and email the results back to the researchers. Through greater analysis, the agency's traditional role of monitoring social, economic and environmental issues was deepening, as the agency sought to understand the various factors at work behind the data and serve as a facilitator of valuable research across the country.

OUTREACH AND COMMUNICATION

When Statistics Canada first established its Internet presence in 1995, the main challenge was to move statistical information from the historical print medium to the new electronic environment and to promote the website. A mere decade later, the agency's website had become its principal dissemination and communication channel to the world.

At first, the agency had two online "products."

One was the free public good module on the website, which offered *The Daily, Canadian Dimensions* tables and other services. *Canadian Dimensions* tables were an array of about 160 free statistical tables of general interest to the Canadian public. The module was built on the infrastructure that already existed for the *Canada Year Book*, with the tables arranged around four themes: the economy, the state, the land and the people. The public good module also contained a commercial gateway, whereby users could identify the CANSIM series they were interested in and preview the costs involved. Then, if they proceeded with the transaction, payment was arranged online via the Toronto–Dominion Bank. The Statistics Canada website was revamped in 2001, with expanded *Canadian Statistics* tables, which were updated automatically from CANSIM. IMDB content was also accessible, along with community profiles and a new search engine.

The second online product the agency offered was a premium dissemination service, called StatsCan Online, for which registration and subscription fees applied. It was primarily an interface for large-volume users who wanted to avoid the frequently long wait times associated with the Internet at the time. This second module, which operated by direct dial-up using a modem, provided access to *The Daily*, CANSIM, and international trade and horticultural databases. StatsCan Online was much more user-friendly and provided guaranteed access and a free helpline. The service was eventually displaced by the Statistics Canada website, as visits to the site were growing by leaps and bounds each year.

In November 1996, through a project called Partners in Accessibility that had been proposed to the Diversity Management Directorate of the Public Service Commission, a speech synthesis service was offered for *The Daily*. By dialling a 1-800 number, people who were print disabled, who had visual impairments, who could not

THE DAWN OF THE RESEARCH DATA CENTRES

It was quickly realized that with the increasing supply of rich datasets from the new longitudinal surveys, the agency did not have the resources to fully exploit the data and was struggling with how to make this new type of information available to Canadians. Publishing summary tables could not do justice to the richness of the data available while protecting confidentiality, and access to the microdata was restricted to Statistics Canada employees or researchers working on its premises. This fundamentally restricted the amount of analysis that could potentially be conducted by the broader research community. Information is valuable only if it can be used, and the very richness of the longitudinal data was, in essence, its limitation.

To explore the issue, Dr. Fellegi and Marc Renaud, President of the Social Sciences and Humanities Research Council (SSHRC), created the Joint Working Group on the Advancement of Research Using Social Statistics, chaired by Dr. Paul Bernard, professor of sociology at the Université de Montréal and member of the National Statistics Council. The working group identified three main barriers to the analytical exploitation of the data, including difficulty in gaining access to detailed microdata collected by Statistics Canada, a lack of effective linkages between researchers and those involved in public policy development, and an insufficient number of researchers trained in quantitative analysis. The working group released a report in 1998 that proposed, among other things, the establishment of research data centres (RDCs) in different parts of the country, where researchers could access microdata while meeting the confidentiality requirements of the *Statistics Act*. Within the year, discussions were underway to set up an initial set of RDCs at universities operating under the same security provisions as Statistics Canada, with a full-time Statistics Canada employee on site.

Nine centres were created, the first of which opened at McMaster University in Hamilton in the fall of 2000. Some of the universities funded their new infrastructure through the Canada Foundation for Innovation. By 2002, the centres were fully operational, and, two years later, there were more than 500 researchers working on over 300 projects in the RDCs. Seven more centres opened from 2004 to 2006, and "branch" RDCs were piloted at the Université de Sherbrooke and Université Laval, and these were essentially operated as extensions of existing RDCs.

The early Canadian Research Data Centres Network was funded for three years (from 2001 to 2004) by SSHRC. In 2006, the RDC network was awarded a multi-year operating grant of about $1.4 million per year for five years from SSHRC and the Canadian Institutes of Health Research. The network also received a grant from the Canada Foundation for Innovation to link all the RDCs. The types of files in the centres would be increased (for example, historical and contemporary census files were placed in the centres), and the feasibility of adding federal and provincial administrative data would be assessed.

The network was immensely successful, enabling access to a rich source of powerful social data for Canadian researchers. New ideas for potential expansion emerged, including the ability to make international comparisons with the data. With respect to subject matter, other areas of potential exploration were brought forward by researchers who were getting to know the data. For example, they pointed to new areas that would be immensely valuable to study, which would require changes to the longitudinal surveys that were originally conceived to fill policy needs. As a result, questions began to be asked about the possibility of creating a tripartite



Dr. Ivan P. Fellegi talking about the importance of the Research Data Centres, Montréal, 2001

governance mechanism involving both policy departments and academic researchers. From 2000 to 2010, the network was governed by an academic council that included a representative from each of the centres. The executive director of the network and the program manager from Statistics Canada held ex officio positions on the council, while funding partners were observers. However, a governing mechanism involving policy departments would not come about until 2017.

turn pages or who had other disabilities could listen to the publication. It was also presented in braille and in large print.

In the late 1990s, as the agency was managing the transition from paper to electronic technology, it was also starting to restrict paper publication to frequently used reference works or flagship publications that appealed to the general public. Others were revamped or consolidated, such as when 13 different publications on income data were replaced by the new *Income in Canada* publication. In 2006, the electronic versions of agency publications became free to access. This was immediately reflected by increased website traffic, especially for *Canadian Social Trends,* the *Canadian Economic Observer,* and *Perspectives on Labour and Income*, which experienced 10-fold increases in views and downloads. One of the results of moving away from a subscription-based system was that clients became more anonymous, and the agency could no longer use its client lists to alert them to updates or revisions in datasets. As a result, the website began to offer a registration system to allow clients to register to receive notifications. A new client relationship management system was also introduced in 2007 after three years of development to centralize information on interaction with clients, and to help support the communication program.

CANSIM rides again

In 1995/1996, a new data model was developed and tested for CANSIM to make the database more user-friendly, with multidimensional tables, harmonized labels, documentation, new data sources and a modernized platform. Then, in October 1996, a contest for employees was held to name the new version of CANSIM. Five months later, the new name was unveiled as… CANSIM II! It was decided to maintain the high recognition value of the name.

In 1997, six survey areas took part in a pilot test to redefine their data structure so it would fit into the new CANSIM II format. The pilot proved that the redesign would be beneficial, but that a large investment in data harmonization and standardization would be necessary. Some new data were made available directly from the new version, and other data were migrated to the new database over time. CANSIM II was up and running on the internal network in April 2000 and was made available on external networks a year later, with about 3 million time series, compared with 1 million in the original version. Just two years later, this had grown to 13 million series, mostly as a result of new labour force and health data. One of CANSIM II's new capabilities was the ability to generate tables and other portions of publications in different

formats directly from its database. It was also built to be multidimensional, as opposed to its predecessor's capability of presenting only one dimension at a time. It was linked to the IMDB and was more easily searchable. The automated generation of tables was called "dynamic publishing," which would later give way to "smart publishing" to allow the creation, assembly and composition of an entire publication from the database. The system greatly reduced the developmental effort required to produce separate paper and electronic outputs. By 2002, a new pricing strategy for CANSIM II would be implemented, allowing for three options: a set fee per accessed vector, prepayments with volume discounts, and a subscription service for unlimited access with an annual fee.

THE DAILY PREVAILS THROUGH TWO NATURAL DISASTERS

Many people in the Central Region will remember the ice storm that ravaged eastern Ontario and western Quebec on Thursday, January 8, 1998. Widespread power outages occurred, as many electrical towers crumpled under the immense weight of the ice. Several areas declared a state of emergency, including the National Capital Region and Montréal, which was one of the most severely affected areas in Canada. Luckily, the power stayed on at Tunney's Pasture, and, although the offices were closed on Friday and Monday, employees came to work to release *The Daily* every day, including the Labour Force Survey data on Friday, and to make final preparations for the census release on Aboriginal data slated to go out the following Tuesday. In terms of operations, many interviewers were themselves affected by the storm, and many respondents obviously had more pressing concerns than responding to surveys. As a result, collection was either delayed or cancelled in some areas, while some work was reassigned to other offices across the country. True to form, the agency soon released a statistical portrait of the event, detailing its impact on employment, retail sales and agricultural operations.

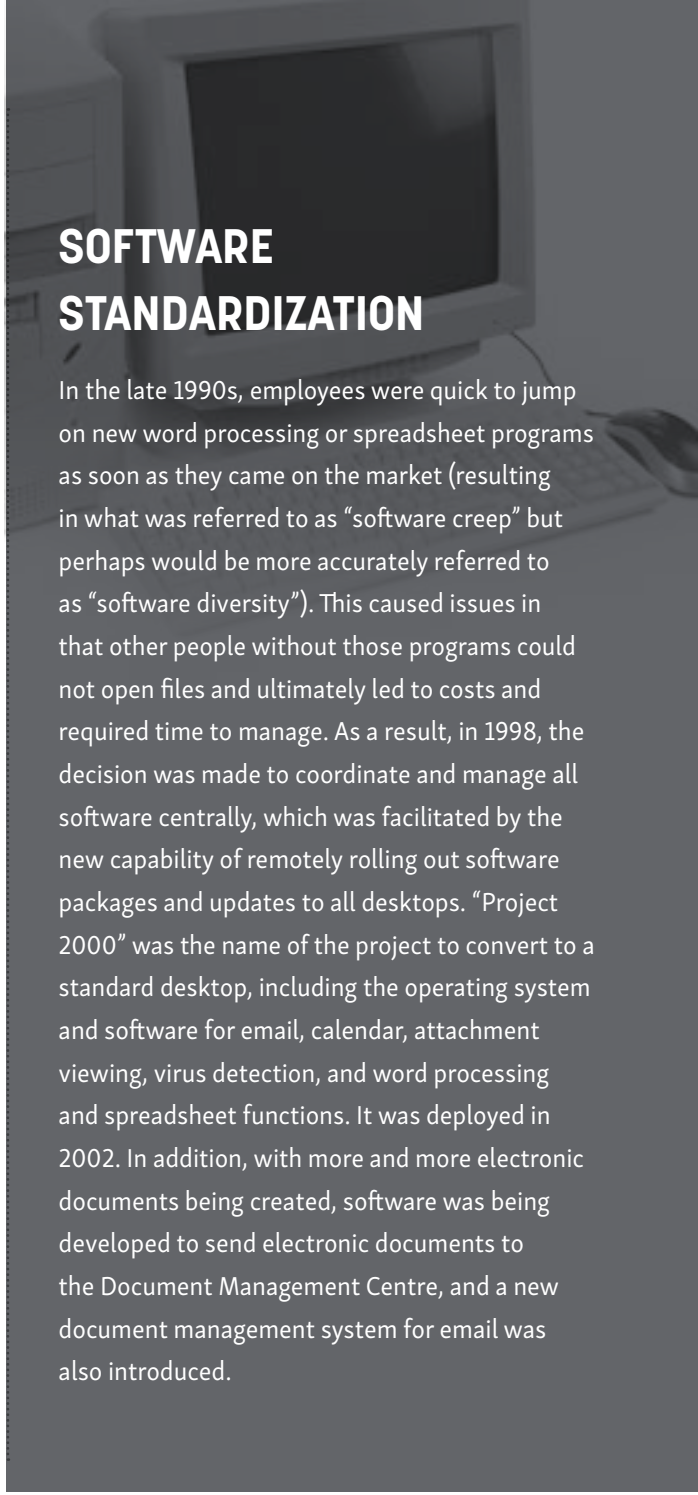
Five years later, in August 2003, the electrical grid in Ontario and the northeastern United States experienced a failure affecting about 50 million people. Nuclear reactor plants without a grid into which to send their power had to be shut down, while some needed repairs, and it took up to two weeks to get the reactors back up to speed. The electrical failure was followed by a week of strict energy conservation. The event resulted in the closure of Ontario-based Statistics Canada offices for six working days. However, the agency was able to maintain building security and safety, protect networks, continue critical data collection activities and publish *The Daily* every weekday, with the coordinated efforts of staff across the country. A supplemental survey was also quickly added to September's Labour Force Survey to allow for analysis of the impact of work hours lost in Ontario and Gatineau, Quebec, as a result of the event.

The education program reaches out

While Statistics Canada's educational program had begun with the development of E-STAT in the mid-1980s, the shift to online services and dissemination prompted the establishment of the Education Outreach Program in 1996. The program offered curriculum-based learning resources to help improve the statistical literacy of students through a customized portal of free information, learning tools and online support. A team of agency employees offered advice and training to teachers across the country and built partnerships with faculties of education, textbook publishers and other organizations supporting the education community. In 2000, the learning resources section of the website was redesigned to offer separate entry pages for students, teachers and postsecondary institutions, and E-STAT was made available online free of charge. By 2003, teachers and students were visiting the online learning resources at a rate of about 4,000 visits per day, and over 9,800 schools were registered to use E-STAT. The program developed other outreach activities, including the international Census at School project, the Classroom Outreach Program, student internship programs, expert speaker programs, and an electronic newsletter about the educational products and services available. The program also worked at ensuring that the latest and most reliable Canadian statistics were included in Canada's education materials, including textbooks and lesson plans.

The Census at School project was an international classroom project that began in the United Kingdom in 2000, developed to expand the statistical knowledge of students. Some of the census questions were common to all countries, while others were developed in Canada by an interprovincial teacher advisory board. Students were involved in the collection and analysis of their own data, which became part of national and global databases for teachers and students to use for research and analysis around the world.

The Classroom Outreach Program started as a pilot project in 1999 as a community outreach activity and a way of introducing statistical literacy to students. Employees shared their expertise in math and technology or contributed other skills or knowledge by working for up to two hours per week in local schools. When it started, 22 employees from the Business and Trade Statistics Field were involved in the pilot project, and, by 2001/2002, about 125 employees were participating from all areas of the agency. In 2004, the University Liaison Program, which



SOFTWARE STANDARDIZATION

In the late 1990s, employees were quick to jump on new word processing or spreadsheet programs as soon as they came on the market (resulting in what was referred to as "software creep" but perhaps would be more accurately referred to as "software diversity"). This caused issues in that other people without those programs could not open files and ultimately led to costs and required time to manage. As a result, in 1998, the decision was made to coordinate and manage all software centrally, which was facilitated by the new capability of remotely rolling out software packages and updates to all desktops. "Project 2000" was the name of the project to convert to a standard desktop, including the operating system and software for email, calendar, attachment viewing, virus detection, and word processing and spreadsheet functions. It was deployed in 2002. In addition, with more and more electronic documents being created, software was being developed to send electronic documents to the Document Management Centre, and a new document management system for email was also introduced.



Students working with Statistics Canada data, Education Outreach Program, 2001

was aimed at postsecondary students, began. The Education Outreach Program was in place for 15 years, until it came to an end in 2012.

Unique promotions in the Census Program

The 1996 Census communications program used some novel methods of getting the message out, such as advertising on bus seats, an electronic billboard near the CN Tower, milk bags and cartons, margarine containers, sugar packages, and inserts in the seat pockets of regional airlines. The Quebec regional office created two 32-second videos featuring a well-known comedian, which were shown on closed-circuit televisions at CEGEPs and athletic clubs. Other communications innovations included the "Let our circle enlarge" artwork by Cree Nation artist George Hester that was featured on a 1996 Census poster, and a public service announcement in the eastern and western Arctic with Inuk singer-songwriter Susan Aglukark. Vancouver artist Barb Wood created artwork to be used throughout British Columbia and Yukon for the 1986, 1991 and 1996 censuses. Among the talent who agreed to participate in census promotions was Canadian actor Leslie Nielsen, who promoted the census in public service announcements in 1981 and again in 1996, when they ran on 70 cinema screens in Alberta and British Columbia, and were played every half hour by Blockbuster Video in its 225 Canadian stores and by Rogers Video in its 142 stores. Other celebrities who participated in public service announcements in the Prairie region included Jean Béliveau, Nettie Wiebe and Allan Blakeney.

A community outreach program that had begun for the 1991 Census was recommended for continuation for the 1996 Census, in response to concerns from the African Nova Scotian community, who felt that census figures did not accurately reflect their numbers. An employee on special assignment from Human Resources Development Canada continued and expanded the outreach program for 1996. A significant focus was also placed on encouraging the participation of the Acadian population.

The 2001 Census of Agriculture also had a fairly unique promotion—the Western Region had arranged that 100 railway cars be wrapped in the census logo. An American model railway company later made models of the car for sale, and when the Census of Agriculture team met in Washington with its U.S. counterparts a few years later, several of the miniature models were presented to the Canadian team. A census manager quite aptly described the situation as "a case of art imitating life imitating art." Apparently, some of the full-size cars can still be seen on the railways today.

Fostering public relations

A comprehensive marketing and dissemination plan was prepared in conjunction with the long-term planning process in 1999. Marketing and dissemination would be focused on corporate priorities, including migrating from print to an electronic format, using the Internet to expand products and services, and better serving clients through an increased coordination of sales with regional offices.

Employee showing one of three Canada Safeway semitrailers sporting the 1996 Census logo in Alberta



In 2005 and again in 2007, Statistics Canada contracted with Environics Research Group Limited to assess the extent to which the brand and role of the agency were recognized, perceptions around the value of the agency, and the extent to which people were willing to participate in its surveys. The 2007 survey found a strong public awareness of the agency and its role, with most adults (80%) holding a positive impression of the agency and feeling that it made a contribution to the quality of life in Canada. In addition, more than half preferred using the Internet to respond to surveys, double the percentage from two years earlier.

The agency continued to develop co-operative relationships with key federal departments and provincial departments—in fact, every time a statistical release was issued with some significant and non-routine information, Dr. Fellegi would send a personal letter containing analytical highlights to the federal and provincial deputy ministers of the appropriate departments.

INTERNAL COMMUNICATIONS

While an internal communications network had been operational since 1994, it functioned through what was referred to as "FolioVIEWS" — a user interface program that employees accessed through an icon on their desktops. When the intranet came about in 1996, it gave the regions better access to the network, as well as its new external cousin on an externally facing network, which could be accessed from off-site. For a time, employees could choose to use the interface they preferred, although, by 1997, the FolioVIEWS software version was discontinued. Divisional intranet sites also began to be created, with 17 created by the fall of 1996.



April 1997 marked the first issue of *@StatCan*, a new weekly electronic communications product for employees. All the stories in the quarterly print publication *SCAN* were also published in *@StatCan*, often in longer formats with more photos, with many articles appearing only in *@StatCan* because of space or time limitations with the print publication. The final issue of *SCAN* appeared in September 2000, fully passing the baton of internal communications to its electronic progeny.

THE ONLINE MOMENTUM CONTINUES

The 1999 Speech from the Throne stated that the Government of Canada was to be "known around the world as the government most connected to its citizens, with Canadians able to access all government information and services on-line at the time and place of their choosing." This prompted the creation of the Government On-Line initiative, which endeavoured to make the most commonly used government services available online, anywhere, anytime and in both official languages. The initiative spanned the years 1999 to 2006, and all federal departments and agencies were to target the end of 2004 to make all their information and services available online. Although most of what the agency produced was available online, the initiative provided additional impetus to continue to evolve into the online sphere.

The final report from the Government On-Line initiative in 2006 remarked that the Internet had emerged as Statistics Canada's primary distribution channel and that the agency's website was among the most frequently accessed sites in all of government. As an example of information as an asset to decision making, it provided an example of the *Canada e-Book*, produced by Statistics Canada. The *Canada e-Book* was an online version of the *Canada Year Book*, which used sound, images, tables, graphs, and analytical and descriptive text to provide an overview of the country. The agency had introduced it as a complement to the *Canadian Statistics* tables, as a result of market research conducted to gauge interest in an electronic version of the *Canada Year Book*. It was free of charge and updated dynamically as new information became available. Employees were invited to lend their voices to the e-book to make it accessible to the visually impaired, and amateur photographers were also asked to contribute photographs. The first version in 2003 had the same four sections as the year book and the *Canadian Dimensions* tables: the land, the people, the economy and the state.

It was updated periodically until its demise in 2005. At that time, the print version of the year book was being redesigned for 2006, going back to its roots as an almanac-style publication, and past year books were beginning to be digitized into an online collection. As well, a new text component to the *Canadian Statistics* tables was being added, called the *Canadian Statistics Overview* (CSO)—short articles analyzing the tabular data, essentially a "companion guide" to the facts. Unlike the e-book, the CSO would have no "year" but would gradually evolve with regular, minor updates instead of the massive undertaking to update the e-book content every few years.

Evolving modes of data collection

Data collection up until 1997 had moved from paper questionnaires to computer-assisted telephone interviewing, to computer-assisted personal interviewing, and to imaging and intelligent character recognition, and was starting to move into electronic data reporting (EDR).

The first large-scale use of questionnaire imaging at the agency was for the 1996 Census of Agriculture. This permitted the capture of data from imaged questionnaires, allowing processing staff to reference them easily. It also allowed analysts to view the questionnaires immediately without having to submit requests for specific forms, wait for them to come back and then resubmit them for filing. Intelligent character recognition was also underway in 1997 for a number of surveys, including the Business Conditions Survey; for the tax forms

used in the Survey of Employment, Payrolls and Hours; for the Address Register; and for the Salary and Wages Survey. The new technology saved both money and time and was being assessed for data capture for the next census. It was used successfully for the 2001 Census of Agriculture, which also served as a feasibility test for the 2006 Census of Population.

By the end of 2004/2005, the agency had moved all but one survey to the new Blaise collection application developed by Statistics Netherlands for computer-assisted interviewing, in the interest of achieving one standard approach for collecting both business data and social data. The agency began to standardize and reuse question modules to decrease costs and increase timeliness, and take advantage of the

Y2K

As the year 2000 drew near, there were widespread concerns that the switch to the new millennium could affect both hardware and software, causing them to operate unreliably. At the heart of the issue, also known as "Y2K," was that to conserve then-precious computer memory, years were stored in computer programs with only two digits, making the year 2000 indistinguishable from the year 1900. Special committees were set up by governments, including a year 2000 task force created by then Minister of Industry John Manley in September 1997. The task force commissioned the agency to conduct a survey to determine the willingness and capacity of businesses to ward off any potential crisis, and to produce the results by November 1997. It did so, and, by the end of 1999, it had conducted three such surveys, called the National Survey on Preparedness for the Year 2000. The intention was that federal departments would use these data to assess how Canadian businesses were dealing with the issue and would identify industrial sectors that could require particular attention. The second survey showed that the problem had been effectively solved; however, the task force recommended the third survey to examine the testing of system fixes and contingency plans in the private sector and by public utilities.

The Y2K issue was top of mind for Statistics Canada for a number of years, second only to the maintenance of its key monthly and quarterly releases. The agency was not just worried about its own systems, it was concerned about its respondents' systems and their ability to respond to surveys. The widespread preparations were ultimately successful, as the rollover at the agency was completely smooth.

call scheduling functions of the software. Where computer-assisted interviewing consolidated interviewing, data capture and some editing directly into one process, EDR was an evolving technology that shifted some of these activities into the user sphere.

The first EDR initiative was in the early 1990s, through what was called the Personalized Electronic Reporting Questionnaire System, a diskette-based application that was distributed to business respondents and installed on their workstations. Respondents were led through a questionnaire that had a number of built-in edits, and then the business would send the diskette back to the agency via courier. Among the first were diskette-based versions of the Annual Chain and Department Store Survey and the Steel Survey. After the dawn of the Internet, the desktop application could be downloaded from the Statistics Canada website instead of receiving the diskettes by mail, and responses were also collected via other modes, including electronic data interchange, email attachments or file transfer protocol. The advantages and savings were many, with respect to timeliness, data quality and cost, but the Internet also brought the challenge of ensuring the security and confidentiality of the transmitted information. When an EDR application was first used for the computer services and Internet providers surveys, the response rate on the first day of launch was higher than that of the entire previous year.

The Government On-Line initiative had provided funding for accelerating the development of the agency's electronic data collection for 2001/2002, which allowed for pilot electronic data applications for eight enterprise surveys and three agricultural surveys. The following year, the agency was granted multi-year financing until 2005/2006 to expand EDR. The approach was twofold: the Secure Internet Response Site, which supported the 11 pilot surveys, and the Personalized Reporting and Exchange Services Site for key data providers, to streamline the reporting of large businesses to reduce their reporting burden. Businesses were able to access their survey inventory, collection calendar and electronic versions of their questionnaires to coordinate their responses.

In 2006, about 50 surveys were using EDR; however, the agency was experiencing a number of technical difficulties. The technology was complex and not user-friendly, and technical problems abounded, making costs soar outside the funding envelope. The download time via modem was very high, and deployment issues arose in response to the many different configurations of respondent computers. The agency was perhaps pushing the envelope a little too far, as most businesses were not ready for the technology. Its adoption by respondents was slow, a phenomenon that was being experienced in other countries as well. As a result, the number of surveys using EDR was cut in half, and the agency went back to the drawing board to review and simplify the electronic data collection strategy and make it more cost-effective. It began working toward server-based solutions (or what was referred to as "zero-install" and "zero-footprint" solutions), as opposed to client-based solutions.

In the meantime, the Internet response channel for the 2006 Census had shown promising results—a take-up rate of about 20%. In 2010, a corporate initiative to use web-based electronic questionnaires as the primary collection mode was introduced. It certainly helped that faster broadband access to the Internet began slowly replacing dial-up access in the mid-2000s.

HUMAN RESOURCES

Human resource (HR) management at the agency had moved away from a time of rigid compartmentalization and was undergoing significant modernization. The modernized HR management provided employees with a feeling of security while encouraging horizontal movement, fostered well-being through an organized wellness program, and allowed voices to be heard and change to be made through employee opinion surveys. It also levelled the playing field through generic competitions and strengthened the agency through robust recruitment and training mechanisms.

The agency was implementing a federal public service initiative in 1997 called "La Relève," which was aimed at improving HR management. The name was an acronym for Leadership, Action, Renewal, Energy, Learning, Expertise, Values and Excellence. It was initiated to help manage the rapid downsizing of the public service in the 1990s, as well as the growth in the use of computers, which it was felt had increased the pressures and demands on public servants. The initiative was introduced by the Clerk of the Privy Council, Jocelyne Bourgon, in her fourth annual report to the Prime Minister on the public service. She drew attention to the poor track record of the public service in HR and career planning and asked federal departments to assess their HR requirements and develop HR management plans. Her report emphasized that the federal public service must reflect and embrace different backgrounds, cultures, experiences, interests and styles.

She also suggested departments might follow the examples of Statistics Canada and Natural Resources Canada and focus on medium- to long-term HR planning. The agency had started to renew its HR a few years earlier (realizing it was faced with many impending retirements and increasing technological change), with a strategy based on recruitment, training, career-broadening initiatives and a positive work environment. In fact, Statistics Canada had pioneered a microsimulation model for the age structure and the promotion and retirement patterns of staff to identify bottlenecks, and set recruitment and promotion targets. This was called PERSIM (the Personnel Simulation Model), and it was shared with the Treasury Board and the Public Service Commission to help them develop an overall recruitment strategy.

Departmental action plans included three pillars: recruitment, employment equity and retention. One of the vulnerabilities that was identified in the agency's La Relève plan was the need to increase representation of employment equity group members. Although significant progress had been made first with respect to Francophones, and then women, Aboriginal people and persons with disabilities, there had been relatively little progress with respect to visible minorities at Statistics Canada or in the federal government.

The evolution of employment equity

In 1967, the first *Public Service Employment Act* was enacted and began to raise questions about employment equity and representativeness in the federal public service. The United Nations had just established March 21 as the International Day for the Elimination of Racial Discrimination in 1966. It called upon the international community to double its efforts to eliminate all forms of racial discrimination in the wake of the Sharpeville massacre in 1960, which shocked the world and drew worldwide condemnation of South Africa's apartheid policies.

In 1971, Canada adopted an official policy of multiculturalism to ensure that all citizens could keep their identity, take pride in their ancestry and have a sense of belonging. The *Canadian Human Rights Act*, which was enacted by Parliament in 1977, protected Canadians from discrimination based on any of 10 grounds: race, national or ethnic origin, colour, religion, age, sex, marital status, family status, disability and conviction for an offence for which a pardon has been granted. Sexual orientation was added to the list of prohibited grounds of discrimination in 1996. In 1982, multiculturalism was recognized in the *Canadian Charter of Rights and Freedoms*, and, in 1988, Canada enacted the *Canadian Multiculturalism Act*.

Two important reports published in 1984 shaped the future of employment equity in Canada. The first was *Equality Now!*, a report produced by the Special Committee on Participation of Visible Minorities in Canadian Society. The committee presented 80 recommendations in the areas of social integration, employment, public policy, legal and justice issues, media, and education. The second key report was *Equality in Employment*, which was produced by the Royal Commission on Equality in Employment, chaired by Justice Rosalie Abella. The commission explored ways of promoting equality in employment among women, Aboriginal people, persons with disabilities and visible minorities. Their report introduced the term "employment equity" and made a number of recommendations, including the need for employment equity laws. In 1985, visible minorities were added to the groups covered by the federal government's affirmative action program, a voluntary program introduced in 1983. The same year, the right to equality was added to the *Canadian Charter of Rights and Freedoms,* stipulating that all individuals in Canada, regardless of race, religion, nationality, ethnic origin, colour, sex, age, or mental or physical disability, are equal in the eyes of the law.



These employees, with the help of the new Automated Coding by Text Recognition system, coded the last census response, 1992

These two landmark reports prepared the ground for the *Employment Equity Act* in 1986, which aimed to ensure that no one would be denied employment opportunities and benefits for reasons unrelated to ability. It also aimed to identify and eliminate systemic barriers faced by designated groups. However, the act did not apply to the federal public service, the Royal Canadian Mounted Police or the military until a later revision in 1995. The *Employment Equity Act* required employers to implement positive practices to achieve a representative public

service through the recruitment, retention and promotion of persons in the designated employment equity groups (members of visible minorities, women, persons with disabilities and Aboriginal peoples).

It also led to the need for data on the designated groups, which prompted the creation of the Employment Equity Data Program at Statistics Canada in 1986 to coordinate data development. Data meeting the definitions for designated groups under the *Employment Equity Regulations* were fairly easy to produce on women, Aboriginal peoples and persons with disabilities, using the census and the postcensal Health and Activity Limitation Survey. Data were a little more challenging to produce for visible minorities. The 1986 and 1991 censuses did not include questions that would enable direct identification of members of visible minorities, so an indirect multistep approach was used to derive estimates primarily from ethnic origin, in conjunction with place of birth and mother tongue. The following census in 1996 included a question about "population group" to enable the measurement of the visible minority population more directly. The new question became the most publicized issue in the 1996 Census, especially in western provinces where a small number of journalists and politicians encouraged Canadians to identify as "Martians."



Embracing Change in the Federal Public Service, 2000

Statistics Canada's Visible Minority Consultative Group was created in the mid-1990s to develop and implement regular action plans addressing priorities to further the agency's goal of an inclusive organization that equally supports all employees, focusing on issues related to visible minority groups. Today, it is a consultative body to senior management on issues affecting the employment, retention, career development and progression of employees from the visible minority community. It reports to the Employment Equity and Diversity Committee, which provides policy advice and implements programs to ensure equitable representation and treatment of employees in designated groups.

With respect to Aboriginal people employed in the public service, their resignation rate was more than double that of non-Aboriginal employees, which prompted the Treasury Board to initiate a study in 1989, carried out by the Public Service Commission in 1990. The interview data suggested that some underlying causes included a sense of isolation from their communities and fellow employees, ongoing discrimination, and a feeling of being concentrated in what was referred to as "Native content positions." These findings offered insights and a basis for further consultation and change.

The government-wide Task Force on the Participation of Visible Minorities in the Federal Public Service was launched by the President of the Treasury Board in 1999, as the government had not yet met the employment equity objectives required by the *Employment Equity Act*. Two of the core recommendations of the task force were to establish a recruitment benchmark targeting the same proportion of visible minorities in the public service as in Canadian society, and to change the corporate culture to make the public service a more welcoming and trusted

THE FOLLOWING CENSUS IN 1996 INCLUDED A QUESTION ABOUT "POPULATION GROUP" TO ENABLE THE MEASUREMENT OF THE VISIBLE MINORITY POPULATION MORE DIRECTLY

environment for visible minority employees. The government accepted the recommendations of the task force, and a government policy called "Embracing Change" was launched in 2000 to implement them. An information session was held at Statistics Canada in January 2003 to announce the changes that would take place and to build support for the initiative. Statistics Canada's action plan included developing a communications strategy to promote an open environment, conducting sensitivity training, reviewing generic competition results, offering career counselling for members of the employment equity groups, and developing a comprehensive policy on accommodating the needs of employees. It also established champions representing each equity group to help the agency set priorities.

To monitor the progress of legislative and policy initiatives, in 2004, the Standing Senate Committee on Human Rights began to monitor issues of discrimination in the hiring and promotion practices of the federal public service and to study the extent to which targets to achieve employment equity were being met. The item became an ongoing order of reference for the committee, and its first report was released in 2007, entitled *Employment Equity in the Federal Public Service: Not There Yet*. It found that although women, Aboriginal peoples and persons with disabilities were better represented than their workforce availability, visible minorities remained underrepresented, and none of these groups were well represented in executive levels or across all occupational groups. It called for strengthened leadership, concrete measures and the removal of systemic staffing barriers. The second report in 2010 and third report in 2013 found that while progress had been made in achieving employment equity goals over the years, there was still work to be done to ensure a federal public service that was truly representative of all Canadians at all levels.

Recruitment and training expand

Recruitment, training and employee development were taking centre stage as a result of a massive new project in economic statistics, a major expansion in health statistics and new postcensal surveys, as well as the new initiatives stemming from the Data Gaps and Data Gaps II initiatives. To complement the increased emphasis on recruitment, the agency produced a video in 2002 entitled "We are Statistics Canada" on its core mission and values. The video was first produced on CD, and then in 2003 became the first video to be featured on Statistics Canada's website. It also earned a merit award in audiovisual presentation from the International Association of Business Communicators.

To help train employees to transform data into information, a pilot run of the new six-week Data Interpretation Workshop was held in early 1996 with 12 employees, to replace the previous three-week Principles of Data Analysis course. Senior analysts acted as advisors to

IN 2003, STATISTICS CANADA RECEIVED A NATIONAL QUALITY INSTITUTE (NQI) AWARD FOR DEMONSTRATING THAT EMPLOYEE HEALTH AND WELL-BEING WERE AN INTEGRAL AND STRATEGIC PART OF ITS BASIC ACTIVITIES

the participants, who prepared a manuscript that could be submitted for publication. As a complement to the course, the Analysis Coaching Program was launched in 2003 to coach employees through the preparation of a short analytical article without having to leave their work to go on a course.

Similarly, the pilot run of the 14-week Business and Economics Statistics Training (BEST) program took place in September 1996. The BEST program grew out of the Project to Improve Provincial Economic Statistics (PIPES), as the massive new initiative needed employees with the skills to design, implement and run major changes to the business and economic statistics programs. The tight deadlines and sheer magnitude of PIPES also meant that the project was drawing heavily on staff from across the agency, and therefore leaving unsustainable labour gaps in other programs. As an example of the degree of turnover, the Industrial Organization and Finance Division held a party in 1997 to bid farewell to 30 employees and welcome 15 new ones—significant numbers, considering the division had about 100 employees at the time. The BEST program was designed to give new employees a solid base of knowledge and skills, and some exposure to the agency's subjects and disciplines in business and economics, such as PIPES, the System of National Accounts, business survey methods, the Business Register, classification systems, business financial statements and project management. It was designed to quickly bring employees up to speed to be able to deploy them into positions at an accelerated pace. Over 80 employees gave presentations to the first class.

Recruitment and development programs that combined job assignments and training were taking off in the late 1990s. Computer Systems (CS) staff were in high demand with PIPES, Y2K and other new programs under development. They were also increasingly in demand from the private sector, so the CS Recruitment and Development Program went into overdrive in 1998 to hire about 125 new university graduates into the two-year development program. The agency also introduced the new Social Sciences Support (SI) Recruitment and Development Program to help address the growing shortage of junior-level technical skills and provide career opportunities for support staff.

The Recruitment and Development Division was created in the early 2000s to consolidate the previously decentralized recruitment efforts and coordinate initial training and development. The new division also helped to make the agency's recruitment more competitive,

speeding up its process so the agency could make earlier offers to the best and the brightest among the potential new hires. It placed greater emphasis on recruitment at all levels and helped those divisions that were experiencing shortages of staff or that were soon to be affected by high rates of retirement.

In 2002, projections of the volume of upcoming retirements by 2010 highlighted that this was a vulnerability, especially among Executive (EX) positions, and the agency was working to mitigate the risk. In the 2002 *@StatCan* special issue, Dr. Fellegi referred to the rejection of the notion of picking one successor per future vacancy—the "crown-princing" approach. "Rather, we decided that we must develop a pool of talented and well-trained individuals at each level from whom we can select the best as and when vacancies at the next higher level occur. This is a much fairer, more robust and, I believe, more effective strategy. However, it is clearly much more labour-intensive." Much of the increased focus on training, including the new Senior Management Development Program in 2000 and the EX Selection and Development Program in 2001, was aimed at mitigating the shortfalls. Some of the other initiatives to assist with succession planning were the Alumni Program, generic competitions, the new Recruitment and Development Division, and a mentoring program that was being reviewed in 2002.

The Alumni Program was a program created in 2000 through which retiring employees with significant corporate knowledge were offered the opportunity to continue to work part time and share their skills. They could return to work to pass on historical knowledge—for example, through optimizing or developing projects, helping with selection boards, or increasing the agency's flexibility to handle periods of high workload. The initiative was highly successful and continues to exist.

A new focus on wellness

In recognition of the importance of a positive working environment, a working group of middle managers was tasked with the issue of supporting the well-being of staff in 2000, and carried out extensive research on innovative practices in the private sector. As a result of this work, the Workforce Wellness Committee was established in 2001 as part of the management committee structure. Its aim was to recommend concrete measures to promote workplace wellness, to research issues affecting employees and to facilitate positive initiatives. One of its first initiatives was to launch a wellness website for employees. Two years later, Statistics Canada received a National Quality Institute (NQI) award for demonstrating that employee health and well-being were an integral and strategic part of its basic activities. As part of its evaluation process, the institute sent a team of five people to the agency for three days and held focus group sessions with over 200 agency employees. While the NQI's Healthy Workplace Award was well established in the private sector, Statistics Canada was the first public sector organization to receive the award.



Logo for the Workplace Wellness Committee



GENERIC COMPETITIONS LEVEL THE PLAYING FIELD

Generic competitions were introduced on a large scale in the mid-1990s in response to the first Employee Opinion Survey, which found that employees believed that the job competition process was not always fair. Local competitions naturally favoured local candidates who had a built-in advantage in the area of the competition, and made promotional opportunities haphazard, depending on the mobility of the more senior personnel in each area. The generic competition process continued to be expanded and refined over the years to increase fairness and transparency.

New staffing initiatives are implemented

In the late 1990s, the public service implemented the Universal Classification Standard initiative, through which it aimed to simplify the job classification system and increase fairness in the evaluation of public service jobs. As a result, the agency consolidated its job descriptions and ended up with about 250 work descriptions, compared with over 2,300 before the initiative started. It also established the Career Streams Committee to identify the skills and the depth of training and knowledge needed at each level within the different career streams at the agency. Information on the training and career-broadening experience needed for progression within each major occupational group and level was provided to employees to use as career planning tools.

In 2006, the federal public service was in the process of amalgamating the Economics, Sociology and Statistics (ES) and Social Science Support (SI) groups into the new Economics and Social Science Services (EC) occupational group. It was a challenge to ensure that the generic job descriptions reflected the duties performed, and, as part of the conversion process, each employee had an opportunity to comment on the description to which their job would be mapped. They could also seek recourse if they were unhappy with the results for their position.

Another key change occurred when the federal public service implemented the new Term Employment Policy in 2003/2004. This change would enable term employees to more quickly become indeterminate employees by decreasing the cumulative working period required from five to three years. In 2004, about 10% of Statistics Canada employees had term status, and 153 employees subsequently became indeterminate as a result of the policy.

As well, starting in April 2004, all bilingual positions in the federal public service had to be staffed by individuals who were bilingual when they were hired. This was a result of the Policy on Official Languages for Human Resources Management. This created a great demand for language training at the agency and across the public service. Increased funding was made available through the government's five-year Action Plan for Official Languages, also referred to as the "Dion plan," as it was part of the mandate of Minister Stéphane Dion. The plan was to strengthen linguistic duality in the country, strengthen the vitality of minority official language communities and better reflect both official languages in the

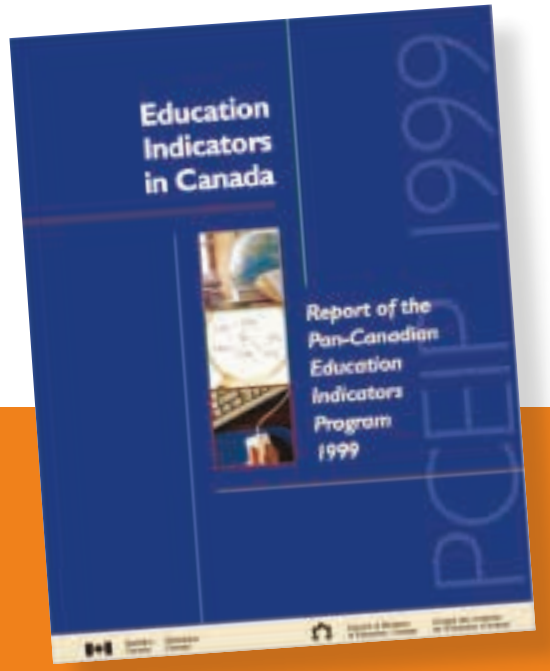
federal public service. In fact, starting in 2001 on a de facto basis, and formally in 2003, a Minister Responsible for Official Languages was appointed for the first time. To evaluate the new action plan and prepare for its possible renewal in 2008, the government asked Statistics Canada to design and implement a postcensal survey: the Survey on the Vitality of Official-Language Minorities. Data were released in December 2007 and were used to develop policies and programs for official language minorities. Ten federal agencies and departments helped to finance the survey, which sought information from the Francophone minority outside Quebec and the Anglophone minority in Quebec.

THE SOCIAL STATISTICS PROGRAM

Dr. Fellegi referred to social statistics as "the Cinderella of statistical systems." There had been numerous attempts over the years to create a comprehensive social statistics framework, but it was not until the government's new focus in the mid-1980s on which programs and policies were working, and why, that major investments began to be made in the social statistics program. The social statistics program underwent significant expansion and redefinition, with longitudinal surveys playing a key role in trying to understand the transitions toward successful outcomes. Social statistics were finally moving beyond simply monitoring processes and expenditures toward social outcomes.

The Centre for Education Statistics is launched

The education statistics program at the agency saw another boost in 1996 when the Centre for Education Statistics was established as a joint undertaking between Statistics Canada, the provinces and territories, and the Council of Ministers of Education. The advantage of a collaborative approach had been seen with the successful Canadian Centre for Justice Statistics, which had opened 15 years earlier. Such an approach afforded a greater sense of ownership for those who provided and used the centre's data. Within a few years, in collaboration with the Council of Ministers of Education, the agency published a report on education indicators as part of the Pan-Canadian Education Indicators Program. This report contained the most extensive range of comparative indicators ever accumulated on the Canadian education system to aid in decision making, policy formulation and program development. This also marked the first major project born of the collaboration with the Council of Ministers of Education and the provincial ministers of education under the aegis of the Canadian Education Statistics Council.



Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program, 1999

A new and powerful health survey is born

Health policy in the country was undergoing a major shift, with an increased emphasis on health promotion, as well as regionalization and integration of various care and support programs. The 1999 federal budget approved a major expansion in health funding for four years, called the Health Information Roadmap Initiative. This was a collaborative effort that had come about in early 1998 as a result of consultations carried out by the federal Minister of Health's Advisory Council on Health Infostructure, the Canadian Institute for Health Information (CIHI) and Statistics Canada. They consulted with health administrators, researchers, caregivers, government officials, health advocacy groups and consumers to identify the country's health information needs. One of the priorities that came out of these consultations was the need for an integrated health information system that incorporated regional and community-level information and allowed for meaningful comparison across jurisdictions. The vision and action plan resulting from the consultations were endorsed by the Conference of Federal-Provincial-Territorial Deputy Ministers of Health. Soon thereafter, Budget 1999 earmarked funding over three years to implement the work plan.

In response to the consultations, Health Canada, CIHI and Statistics Canada launched a collaborative process to identify indicators that could be used to report on the health of

CANADA'S ONGOING FAMILY VIOLENCE INITIATIVE



Under Canada's ongoing Family Violence Initiative, Statistics Canada collected and analyzed data from a variety of sources to produce an annual report called *Family Violence in Canada: A Statistical Profile*. First released in 1997, it provided the most current data on the nature and extent of family violence in Canada, as well as trends over time. The first issue addressed topics including spousal assault; child abuse; criminal abuse of older adults; and criminal harassment or stalking, as a result of the 1993 amendments to the *Criminal Code*, which had added the new anti-stalking offence of criminal harassment. In 1999, the first General Social Survey on Victimization was released, providing information on spousal violence against women and men. The General Social Survey had doubled its sample size through funding from the Policy Research Initiative. The second cycle on victimization was released in 2004, and, two years later, Statistics Canada and the federal, provincial and territorial ministers responsible for the status of women released a report entitled Measuring Violence Against Women: Statistical Trends 2006.

Canadians, as well as the Canadian health system. The intention was to share this information, while respecting privacy and confidentiality, and support regional health authorities in monitoring the progress of their health-related initiatives through high-quality comparable information. A strategic framework was developed to guide the work and monitor achievements, and experts from the regional health authorities and from provincial, territorial and federal health ministries, as well as academics, were consulted to develop a set of indicators for the framework. This work culminated with the 1999 National Consensus Conference on Population Health Indicators, where a first set of comparable health indicators in the areas of health status, outcomes of health services and quality of health services was selected. The suite of indicators would expand with the development of new data sources, new benchmarks and knowledge growth. To extend the reach of the project to a wider audience and improve access to the indicator data, Statistics Canada and CIHI created the *Health Indicators* Internet publication, accessible from both websites, containing the full suite of regional-level indicator data produced through the project.

In 2002, via a separate initiative, all provinces and territories and the federal government published a set of comparative health indicators for their jurisdictions. Statistics Canada provided most of the data for these reports, including by launching a special survey to fill two key data gaps on waiting times for key diagnostic and treatment services and on access to first contact services. A new 2003 health accord resulted in a need for additional indicators, which Statistics Canada was again involved in developing, and for which it supplied nearly three-quarters of the required data.

The two key questions the government was seeking regular information on were "How healthy are Canadians?" and "How healthy is the health care system?" Statistics Canada and CIHI co-published two reports answering these questions in 1999 and 2000, with the agency taking the lead on the first question in a special issue of its *Health Reports* publication, and CIHI taking the lead on the second question in a report entitled *Health Care in Canada, 2000: A First Annual Report*.

One of the central elements for the development of regional-level data was a health survey that could provide estimates for individual health regions, where a larger number of decisions about the health system were being made. The new Canadian Community Health Survey (CCHS) began in 2000 with about 130,000 respondents, providing a range of information on health status and risk factors for 136 health regions across the country. It became the agency's largest household survey after the census. All provinces, territories and regions were offered the opportunity to choose optional content modules based on their data needs, which resulted in 27 different versions of the survey being conducted. Canadians were also



Health Reports: How healthy are Canadians? A special issue, 1999

UNTIL 2007, THE CCHS RAN ON A TWO-YEAR CYCLE, WITH A MORE IN-DEPTH QUESTIONNAIRE ON A SPECIAL TOPIC THAT INVOLVED A SEPARATE STREAM OF CONSULTATIONS

asked for, and largely provided, consent to link their provincial health records with the survey data. The rich dataset created would enable researchers to link lifestyle practices (such as smoking, exercise, regularity of physician visits, stress and workload) to health outcomes (including use of the health care system, hospital stays and physician visits), as well as to study the long-term benefits of major health interventions.

Until 2007, the CCHS ran on a two-year cycle, surveying 130,000 respondents one year on core questions, and the next year surveying 30,000 respondents with a more in-depth questionnaire on a special topic that involved a separate stream of consultations. For example, in preparation for the 2002 cycle, which addressed mental health and well-being, extensive consultations were carried out with privacy commissioners, health associations and mental health experts to develop an appropriate approach. This survey provided national estimates of the prevalence of major mental disorders and problems, helping to shed light on issues such as access to and utilization of mental health services, the prevalence of episodic and chronic mental health problems, and the availability of social support. Beginning in 2007, the core survey switched to continuous collection, surveying 130,000 respondents over the two-year period, to level out the interviewing workload and yield annual releases to support more timely health surveillance. The special in-depth surveys continued to operate every two years. The same year, a rapid response functionality was developed, whereby external clients could have data collected, processed and released within a four- to six-month window.

Additional landmark health initiatives

The agency conducted a joint survey of health with the U.S. National Center for Health Statistics in 2003, to improve North American comparability of data on health—especially given the difference between the largely private U.S. health care system and Canada's publicly funded system. This was the first time Statistics Canada conducted data collection in a foreign country.

The agency also received new funding in 2003 for another major health survey, but one that would take a wide range of physical measures. Under the direction of an expert advisory committee, and with guidance from the U.S. National Center for Health Statistics, which had experience with a similar type of survey, work began to launch this unique survey. The new Canadian Health Measures Survey would provide data on indicators of chronic diseases, fitness, environmental exposures, nutritional status, infectious disease and risk

factors, as well as protective characteristics. A pretest was conducted with the help of the Calgary Health Region in 2004 to determine whether Canadians would agree to participate in such a survey and to help delineate the costs and logistics required. After a successful pretest, the project team conducted a dress rehearsal in early 2006 to prepare for full-scale data collection. The survey included a household interview as well as a clinic visit to collect the physical measures, with the first cycle involving 5,500 Canadians in 15 communities across the country over a two-year period. The mobile clinics where the physical measures were collected were customized trailers, including two that were on loan from the National Health and Nutrition Examination Survey, a similar direct-measures survey already conducted in the United States. A new division was also created at the agency—the Physical Health Measures Division—to support the survey. The first data release in November 2008 presented preliminary data on blood levels of lead, mercury and cadmium from the first eight collection sites. Budget 2008 secured the future of the program.

Two key postcensal surveys included the Health and Activity Limitation Survey and the Ethnic Diversity Survey.

The Health and Activity Limitation Survey was a postcensal survey previously carried out in 1986 and 1991 that was renamed the Participation and Activity Limitation Survey (PALS) for 2001 and 2006. The new name reflected the fact that the survey would focus on the participation of persons with activity limitations. The 2001 sample size was about 40,000 and provided information on the characteristics of adults and children with disabilities; their need for support; and their participation in education, employment and everyday activities. The survey was funded by Human Resources and Skills Development Canada (Human Resources Development Canada in 2001). The 2006 cycle was the last time PALS was conducted, as the New Disability Data Strategy was launched by Human Resources and Skills Development Canada in 2010.

The agency was also collaborating with Canadian Heritage on the postcensal Ethnic Diversity Survey to provide information on ethnic diversity in Canada and the impact on socioeconomic outcomes, and to help improve information on how people interpret and report their ethnicity. Starting in April 2002, 30 representatives from the agency interviewed about 42,000 individuals in the two official languages, as well as in Mandarin, Cantonese, Italian, Punjabi, Portuguese, Vietnamese and



Logo for the Aboriginal Peoples Survey

Spanish, using computer-assisted telephone interviewing. Information collected was used not only to inform policy and program development in Canadian Heritage but also to help content development for the 2006 Census.

The new Aboriginal Statistics Program

The Aboriginal Peoples Survey (APS) was first conducted in 1991 to develop both core national data and data for specific Aboriginal groups. Responding to a recommendation from the Royal Commission on Aboriginal

Peoples, and as part of the federal Gathering Strength initiative, the agency was asked to conduct the survey on a regular basis and develop a program to build statistical capacity in Aboriginal organizations. As a result, the survey became a postcensal survey. The 1991 and 2001 surveys were designed to produce data for both on- and off-reserve populations, while the 2006 cycle was the first to exclude the on-reserve population in the provinces. Later, the 2012 survey was the first to exclude the on-reserve population for both the provinces and the territories.

To respond to the request to help build statistical capacity, the agency created the Aboriginal Statistical Training Program, for which it conducted a pilot in February 1999. The two-week course was aimed at Aboriginal people whose jobs required them to work with statistics. It was designed to show participants how to define their data needs; how to find data; and how to use data effectively to support their organizations' decision making, planning, programming and evaluation. It also provided an introduction to survey taking to address cases where primary data did not exist. As well, the Aboriginal Internship Program was established, whereby interns would be hired for two years at the agency to learn from a variety of statistical activities.

The agency was asked in 2003/2004 to develop a plan for a comprehensive Aboriginal statistics program that would meet the information needs of Aboriginal groups, governments and others. Two years of funding were provided, totalling $10 million. The program was to deliver statistics similar to those available for the non-Aboriginal population and provide statistical training and skill development to First Nations people, Inuit and Métis to facilitate Aboriginal self-government. Program options were to be prepared for consideration by Cabinet in the spring of 2005. In the meantime, the agency was engaging with Aboriginal groups, conducting training, and developing survey approaches for both the on-reserve population and the off-reserve population. Nine Aboriginal liaison officers were appointed to serve as primary contacts with Aboriginal groups and organizations. Questions were added to the Labour Force Survey, and experimental estimates were produced for the four western provinces. Pilot household surveys were also conducted in five First Nations communities, as well as pilot surveys of public sector statistics for First Nations governments. Work was also underway to develop a postcensal survey of Aboriginal children to collect information about

Early Enumeration in the Western Arctic 2001 Census



the early development of children younger than 6 living on and off reserves across Canada. Much of this ongoing work was dependent on securing additional funding through the Cabinet proposal for an ongoing program, as the initial funding was set to expire in March 2005. Funding was secured over five years in 2007 for the Aboriginal Peoples Survey.

Two new longitudinal initiatives

Funded through the Data Gaps II initiative, a new longitudinal survey was implemented to better understand how immigrants adjusted to life in Canada. Results also allowed for an analysis of the association between socioeconomic background and success in Canada, and showed which services were most effective in helping immigrants settle into Canadian society. Interviews were offered in 15 languages and began in the fall of 2000. An initial sample size of 20,000 recent immigrants was planned, with respondents interviewed three times over the four years since their arrival.

Three years of consultations with ministries and departments of health and the Canadian Institute for Health Information came to fruition in 2008 when respondents began giving permission to link their survey results to their provincial health care records. The linkage had enormous analytical potential by connecting survey data on socioeconomic background, risk factors and self-assessed health to provincial records to analyze relationships between risk factors, socioeconomic characteristics, health care utilization, interventions and outcomes. This became known as the Longitudinal Health and Administrative Data Initiative. At the first federal–provincial steering committee meeting, the members agreed on priority research topics such as end-of-life care, impacts of mental health problems on care utilization, Aboriginal health, cancer survival and acute health care episodes that could have been avoided. Provinces signed memoranda of understanding in 2008 and 2009 to participate in the initiative.

Two new workplace surveys

The Workplace and Employee Survey was a first attempt at a large-scale employer-employee survey to answer productivity and competitiveness questions. It was funded through the Data Gaps II initiative and conducted in collaboration with Human Resources Development Canada. This was a dual survey — first starting with a sample of employers and then drawing a sample of their employees — allowing for information from both the supply and demand sides of the labour market. It provided information on employees' impact on business practices, including technology use, training, wages, downsizing, and the existence of foreign and domestic partners. It also allowed for the examination of the positive or negative effects of employee education, experience and turnover on business. The pilot test was run in 1996 and the first full-scale survey was conducted in 1999. The annual longitudinal survey tracked workplaces over a six-year period and followed their employees for two years. The survey was conducted from 1999 to 2006, although the last wave included only employer data.

Data from a new survey of 315,000 nurses, conducted in partnership with the Canadian Institute for Health Information and Health Canada, were released in 2006, covering working conditions, challenges, and physical and mental well-being. The National Survey of the Work and Health of Nurses was the first nationally representative survey to focus on the working conditions and health of the largest occupational group in the health care sector, including registered nurses, licensed practical nurses and registered psychiatric nurses employed in all provinces and territories. The survey was developed in collaboration with organizations representing practising nurses, health care researchers, health , information specialists and federal government departments.

Canada participates in an international survey of youth

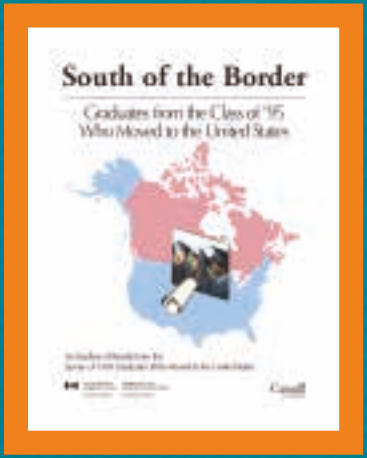
Canada was one of over 30 countries participating in the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (PISA), which actually became a policy tool leading to education reform in some countries. The program was designed to provide indicators of student achievement at age 15, with reading literacy assessed in 2000, mathematical literacy in 2003 and scientific literacy in 2006. It provided information on competence and the impact of socioeconomic background and schools. In Canada, over 30,000 15-year-olds from more than 1,000 schools took part in 2000.

The Youth in Transition Survey complemented the Organisation for Economic Co-operation and Development survey by tracking movements of young people and looking at factors influencing school–work transitions. In fact, the first cycle was integrated with PISA for the younger cohort. First launched in 2000, the Youth in Transition Survey followed two cohorts, one aged 15 and one aged 18 to 20, collecting information every two years until the youth reached their mid to late 20s.

An international focus on youth delinquency

Because statistics on youth delinquency were based on policy sources, they referred only to acts of crime or mischief that were reported. To provide broader data and data in the context of relationships or bonds with parents, schools and friends, the International Self-Report Delinquency Study was initiated by the Dutch

THE BRAIN DRAIN



There were increasing concerns about the "brain drain," which referred to the loss of well-educated individuals to other countries, primarily to the United States, seeking better opportunities or higher salaries. The Survey of 1995 Graduates Who Moved to the United States was undertaken to examine graduates' characteristics, their reasons for relocating, their education and work experience, and their future plans. In 1998, the agency used the results from this survey, as well as other data, in a comprehensive study of the flow of knowledge workers between Canada and other countries. It found that while Canada did have a relatively small brain drain to the United States, this was offset by an inflow of highly skilled workers into the country from the rest of the world. For every university degree holder migrating from Canada to the United States, there were four university degree holders migrating from the rest of the world to Canada.

MEASURING HATE CRIME

In 1965, the Minister of Justice appointed a special committee (the Cohen Committee) to study and report on hate propaganda in Canada. The report was made public in 1966 and resulted in hate propaganda being made an offence under the *Criminal Code*.

The first country to mandate collection of hate crime statistics was the United States through the *Hate Crime Statistics Act* of 1990. In Canada, while various police departments voluntarily collected hate crime statistics, there was no centralized system. Hate-motivated crime was identified as a major data gap in the late 1990s. The 1999 General Social Survey on Victimization first asked specific questions related to hate crimes, which provided a major development in hate crime research, as it provided the first available national estimates on hate crimes.

In 1999, the Canadian Centre for Justice Statistics received four years of funding from the Policy Research Initiative to gather information about criminal behaviour motivated by hate or discrimination in the Canadian justice system. Consultations were first carried out through the Police Information and Statistics Committee of the Canadian Association of Chiefs of Police to establish a common definition of hate crime. A pilot study on hate crime with 12 major police services then assessed the feasibility of collecting hate crime statistics through police agencies. The same project looked at the diversity of victims, offenders and workers in the justice system to allow for the assessment of equality of access to justice services.

The Uniform Crime Reporting (UCR) Survey had been producing a continuous record of crime and traffic statistics from every police agency in Canada since 1962, and, in 1988, a significantly revised version referred to as "incident-based" began, which captured data on the characteristics of incidents, victims and the accused. The survey was again modified in 2005 to allow police to identify hate-motivated crimes by capturing data on incidents motivated by hate based on race, national or ethnic origin, language, colour, religion, sex, age, mental or physical disability, or sexual orientation. This aligned with changes to the *Criminal Code* that allowed for increased penalties when there was evidence that an offence was motivated by bias, prejudice or hatred toward a particular group. Canada was one of the first countries in the world to collect such data, and the program was seen internationally as a model for measuring the nature and extent of hate-motivated crime.

In 2006, the Hate Crime Supplemental Survey was funded by Canadian Heritage in support of Canada's Action Plan Against Racism, which was a five-year project to fight racism and promote inclusion. This was a special survey of police service reporting data as part of the UCR Survey, but whose electronic reporting systems had not been converted to the new system. The affected services manually provided information on incidents motivated by hate, which Statistics Canada could link to the UCR Survey data.

Ministry of Justice and first conducted in 1992 with 13 European countries, as well as the state of Nebraska in the United States. A second study was conducted in 2006 with about 30 European countries, the United States and Canada. The Canadian arm of the study was called the International Youth Survey, which was sponsored by the National Crime Prevention Centre, a division of Public Safety and Emergency Preparedness Canada. The International Youth Survey was conducted as a voluntary survey with about 60,000 students in Toronto, after obtaining parental consent. It provided information to help address questions related to risk and protective factors for misbehaviour (such as drug and alcohol use, parental supervision and relationships), and how schools and communities could assist high-risk children in developing prosocial behaviours and positive school outcomes.

THE CENSUS PROGRAM

Census Day for 1996 was switched to mid-May from early June to maximize the number of Canadians at home during enumeration and allow sufficient time to conduct follow-up processes before the summer holiday period. For the Census of Agriculture, the Progress of Seeding Follow-Up Survey was conducted for roughly 100,000 farm operators who reported less than 90% of their field crops seeded on Census Day, to evaluate the impact of the date change and verify or update the crop data they reported.

The 1996 Census of Population included new questions on unpaid household activities and to identify the visible minority population. For the first time, all census questionnaires were printed on recycled paper, and all standard products were made available in electronic format, including CD-ROM and diskette. Some information was made available on the Internet. In addition, as funding provided by the Treasury Board was sufficient only to conduct a basic enumeration, six federal departments that relied heavily on census results to implement many of their programs and policies contributed $55 million so that a full-scale census could be carried out. It was also the first time the agency drew attention up front to the fact that it was the law to complete the census. For previous censuses, the emphasis had been placed on individuals' civic responsibility for the benefit of all Canadians, and the legal implications were brought forward only with delinquent respondents.

The agency once again used Revenue Canada facilities to process questionnaires for the 1996 Census. Soon, however, the agency was beginning to investigate new methods to capture census records, as the permanence of the tax facilities was questionable, given that a



Chief Statistician Ivan P. Fellegi addressing participants at the 1996 Census senior managers' briefing session, 1995

large portion of the population was beginning to file their income tax returns electronically. The agency was also working toward making its census forms available to Canadians via the Internet. In preparation, the agency was enhancing and increasing the scope of the Address Register with the intention of mailing out questionnaires in 2006 to about two-thirds of the households. It was also working on an Internet option with appropriate security and built-in edits, intelligent character recognition, and automated checks for completeness, and it aimed to conduct follow-ups from a series of regional computer-assisted telephone interviewing sites.

The 2001 Census marked the first time information was collected on same-sex couples living common law, while the next census in 2006 collected information on same-sex marriages after their legalization in July 2005. The 2006 Census also included a landmark new question seeking permission to use data from income tax records to lower respondent burden.

It was very difficult to recruit and train staff, as the employment situation was very strong in the spring of 2001 and there was a great deal of competition for qualified personnel. The 2001 Census used the Internet as its primary delivery vehicle for the first time for data products and services to the public and media. A new edit and imputation system called the Canadian Census Edit and Imputation System (CANCEIS) was used for processing the demographic, labour, mobility, place of work and mode of transport variables — about half of all the variables from the 2001 Census of Population. It was enhanced and successfully used again for the 2006 Census and processed nearly 100% of the census variables. CANCEIS was also used in the processing of the 2001 Ukrainian census, the 2000 Brazilian census, the 2000 Swiss census, the 2005 Peruvian census and the 2011 U.K. census.

Because of the substantial changes in methodology being planned for the 2006 Census, it was deemed necessary to test these changes in a full dress rehearsal in 2004, which had not happened since 1974. As a result, there was much less time than usual to develop the numerous systems feeding the census, and the agency decided to contract out a large portion of the development process. The contracted-out systems dealt with the logistical part of the operation, including keeping track of returns and ensuring census takers were up to date with the status of each questionnaire to cue them for required follow-up.

The power of mapping

When computerized census enumeration maps were first produced in the mid-1980s, they proved to be valuable collection tools. However, their production was manual and labour intensive, with varied quality depending on the source documents. For the first time, for the 2001 Census, all maps were produced in an automated fashion using a set of digital geographic databases that were operated and updated in partnership with Elections Canada.

The agency had a long track record of informal co-operation with Elections Canada, and, in April 1998, they signed a memorandum of understanding to formalize this co-operation on a "joint build project." The project was to develop a shared national database of streets and to share mapping data, updates and infrastructure in a single network file called the National Geocartographic Database. This file of streets, names and address ranges combined with geographic and political boundaries would support Elections Canada in its voter enumeration and Statistics Canada in its collection and dissemination activities. The two agencies jointly maintained the geographic frame and, in the lead-up to the 2006 Census, reached out to other federal government departments and provincial agencies to acquire

ACCESS TO HISTORICAL CENSUS INFORMATION

The Canadian Century Research Infrastructure (CCRI) project was launched in 2002 and aimed to create public-use sample files from the historical censuses of 1911, 1921, 1931, 1941 and 1951. It facilitated the availability of census databases spanning 130 years, as the new databases were linked to existing databases for 1871 to 1901 and for 1961 to 2001. It was one of the largest-ever social science initiatives at the time, as it created the foundation for research on the transformation of Canadian society since the late 19th century. Funding was provided by the Canada Foundation for Innovation; the provincial governments of Ontario and Quebec; private sector corporations; and various other institutions, trust funds and foundations.

The internationally recognized research initiative was led by Dr. Chad Gaffield of the University of Ottawa's Institute of Canadian and Aboriginal Studies, along with team leaders at seven partner Canadian universities (the University of Ottawa, the University of Victoria, York University, the University of Toronto, the Université du Québec à Trois-Rivières, the Université Laval and Memorial University of Newfoundland). Each university developed a CCRI research centre that met the security requirements of Statistics Canada. Other partners included the Institut de la statistique du Québec, IBM Canada, the International Microdata Access Group, Library and Archives Canada, the Newfoundland and Labrador Statistics Agency, and Statistics Canada. By 2006, the project had grown to involve over 130 researchers, students and professional staff across the country.

Much of the work across the seven university centres involved keying data from manuscript census records that were often hard to decipher, as well as cleaning and coding the data. In addition to creating the census databases, the project also involved research into qualitative and contextual data, such as what was reported in the newspapers for each census about enumeration or census results and what was discussed in the House of Commons, the Senate and provincial assemblies, along with other published or unpublished documents relating to each census. The data were also overlaid with Geographic Information System map layers to allow georeferencing. The result, a large-scale multidisciplinary searchable and interactive research infrastructure, was made available through research data centres across the country in 2009.



Chad Gaffield, Director of the Institute of Canadian Studies at the University of Ottawa and leader of the Canadian Century Research Infrastructure project, 2002

road updates, which resulted in improved road network information.

Until 2006, the census enumeration area was the smallest nationwide geographic unit, but data comparisons proved difficult, as these areas were not always stable over time. As a result, city blocks in urban areas and analogous entities bounded by stable features in rural areas began to be used as the smallest standard building unit for dissemination purposes. The use of these smaller areas as the foundational building blocks also gave the flexibility to design enumeration areas more accurately and to allow custom dissemination areas based on the needs of users.

In 2005, the agency's Road Network File, which used the National Geocartographic Database as its source, became free to the public. In 2001, it had been a $25,000 product. The move was in part to promote partnerships with the provinces under data sharing agreements. This decision was also made because more and more departments were making such datasets available, and Statistics Canada wanted to promote the adoption of its geographic products for applications including mapping, geocoding, searching, area delineation and database maintenance. A longer-term project was also initiated to migrate the Road Network File to a more accurate and timely GPS-compliant model from Natural Resources Canada in preparation for the 2011 Census.

THE BUSINESS STATISTICS PROGRAM

The Project to Improve Provincial Economic Statistics turns the tides

In 1996, the Government of Canada and the governments of New Brunswick, Newfoundland and Labrador, and Nova Scotia agreed to harmonize their sales taxes to reduce business costs, simplify taxes and reduce administrative costs. Starting on April 1, 1997, a single common tax of 15% (the harmonized sales tax) began to be charged instead of the four separate taxes that had previously applied (the federal goods and services tax and the individual provincial taxes). The federal and provincial governments needed an unbiased and trusted intermediary to provide the data required to calculate the revenue shares, about $25 billion annually, between the four governments. Statistics Canada was asked to be that intermediary, despite its status as a federal agency, which was quite a distinction and an honour.

The provinces had agreed to the harmonization only so long as their tax revenues could be as stable and predictable as they were with just the sales tax. This added a complication because businesses were entitled to a rebate of the goods and services tax they paid on the input to what they sold. As a result, tax revenue needed to be shared on the basis of the final sale within a province, although it was collected at all stages of production wherever that production occurred. Until this time, there had been no tracking of whether a sale was final or whether an item would be an input into a further refinement and sold again.

This new project was called the Project to Improve Provincial Economic Statistics (PIPES) — a massive undertaking that increased the agency's annual budget by about $43 million. The broad goal of the project was to produce economic statistics of roughly equal reliability for all 13 provinces and territories, not just for the provinces participating in the harmonized sales tax. As a result, larger samples,



2006 Census employees

in relative terms, would be needed in the smaller provinces. A large number of staff needed to be hired, while, at the same time, the agency needed to manage downsizing in other areas as a result of budget reduction requirements.

Work on PIPES started in December 1996, as the agency began conducting consultations and detailing action plans. A number of task groups were created to spearhead work on the project, the first consisting of 14 directors general from across the agency to provide oversight and coordination. The other groups focused on managing external relations and response burden; designing and implementing a new unified enterprise-based business survey system; managing the transition between the existing and new survey system; and managing human resources issues such as training, recruitment and staffing. The project, led by Philip Smith, then Director General of the PIPES Implementation Branch, involved new business and household survey activities, a program of annual provincial input-output tables, and initiatives to expand the use of tax and other administrative data.

This massive agency-wide mobilization of resources over several years had the primary objective of producing input-output accounts and income and expenditure accounts for all of Canada's provinces and territories. The provincial industrial level of detail available needed to be improved, along with the integration of economic statistics at the provincial and national levels. The agency needed to develop annual interprovincial trade data, implement a new classification system and double the scope of the Business Register to include "zero-employee businesses" (essentially adding about a million businesses). Some surveys needed to be expanded, such as the Survey of Family Expenditures, which would be conducted annually instead of every four years. This survey would help the agency have two measures of consumer expenditures — from the perspective of businesses and from the perspective of consumers. The Methodology Branch and the Informatics Branch needed to assist in the redesign of all affected surveys, and the Regional Operations Branch and the Operations and Integration Division needed to handle increased collection and processing, and assist businesses with the change in reporting activities. The Human Resources Branch needed to hire many new people and mobilize experienced people through rotations, reassignments and corporate assignments.

The new Unified Enterprise Statistics Program (UESP) was a modernized, consistent approach to business surveys that grew out of PIPES. The six main elements of the UESP were to use the Business Register; use tax data to the fullest extent, where feasible; harmonize and integrate questionnaires; adopt enterprise-centric collection; have a unified approach to sampling, data capture, edit, imputation, allocation, calendarization and estimation; and use common microdatabases. It started in 1998 for reference year 1997 with seven pilot industries that had previously not been surveyed, or surveyed only in a limited way. The pilot profiled aquaculture, couriers and messengers, taxis and limousines, construction, food services and drinking places, real estate lessors, and real estate agents and brokers. The second edition covered reference year 1998 and was expanded to include the first major industry—wholesale trade. After four years of development, the UESP came to integrate more than 20 surveys, including the Annual Wholesale Trade Survey, the Annual Retail Trade Survey and the Annual Survey of Manufactures.

The Business Survey Redesign Project, which began in 1984, had first initiated the corporate Business Register (BR), but it was with the infusion of funds into the UESP from PIPES that the register was strengthened and finally adopted by all business surveys. A major re-engineering of the BR started in 2005 and was expected to take three years. The register

was modernized to simplify operation concepts and processes, purge outdated technology, and reduce production costs. Then, the migration of surveys to the new register began in the fall of 2007 and was to take about six months, respecting the individual survey cycles. The redesign was complete in 2008, resulting in an integrated environment and improved tools. Plans were also being made to add the public sector universe to the BR.

The agency also realized it would need to create case managers for large enterprises, since the new reporting requirements could appear quite complicated. The agency began to look at data collection from complex enterprises as a single integrated requirement negotiated on a case-by-case basis instead of a series of individual surveys. The Key Provider Manager Program (KPMP) was expanded to encompass more large enterprises, and, by 2005, covered about 180 of the most data-critical Canadian businesses, providing one-stop assistance and response coordination services. From 2005 onward, the target was to double the number of enterprises covered without a net cost increase.



Team responsible for the Key Provider Manager Program (KPMP), 2002

To achieve this, a pilot project was conducted to merge the KPMP with the Large Businesses Profiling Program from the Business Register Division, which had been focusing on staying on top of the constantly changing structure of large enterprises. The new merged program would be called the Enterprise Portfolio Management Program and would holistically manage the agency's relationship with about 350 of the country's largest businesses in several respects, including profiling, survey reporting arrangements, issue resolution, coherence analysis and data collection, in a more integrated fashion.

The number of small businesses exempted from the UESP grew as the agency began to make greater use of tax data in lieu of survey data, through the Tax Replacement Project. The target to replace questionnaires with tax records for 50% of simple businesses (operating in one province and in one industry) was achieved a year ahead of schedule and was raised to 60% by 2006. The content of the UESP questionnaires was also being streamlined to reduce respondent burden, and questionnaires were mailed out earlier to coincide with the fiscal year end of businesses, when their records would be closer at hand. While the agency had been reducing respondent burden in an

aggregated way through various initiatives since the late 1970s, it was not until 1998/1999 that it was able to control the burden for an individual business. A system was developed to track and archive all previous survey contacts for a given business.

Some of the new annual household surveys implemented as part of PIPES included the Survey of Household Spending, the Homeowner Repair and Renovation Survey, and the Canadian Travel Survey. The new surveys brought about by PIPES were initially referred to as "feeder surveys." By 2000, it had transitioned from a project to an ongoing operational program, with many of the new surveys and the national accounts expansion continuing to the present day.

The need for improvement of provincial economic statistics had been identified years earlier, and PIPES, although designed to assist the tax system, was instrumental in improving provincial economic statistics, as well as integrating and improving the coherence of all economic statistics. The project realized its ultimate objective of producing detailed provincial input-output tables and income and expenditure accounts annually for every province and territory.



Team responsible for the North American Industry Classification System (NAICS), 2000

A new classification system is introduced

After two years of intensive work, the North American Industry Classification System (NAICS) was signed off on in December 1996 by the chief statisticians of Canada, the United States and Mexico. The new system allowed for comparison of the performance of different industries within the North American free trade area, replacing the Standard Industrial Classification, which had been developed in 1948 to measure the Canadian economy and which had been revised at 10-year intervals. The North American Free Trade Agreement had been signed in January 1994, and, by August, agreement was reached that the three statistical agencies would develop a common industrial classification. Each country conducted its own extensive consultations, including with industry and trade associations, forecasters and research institutes, advisory committees, and policy departments. Canada's efforts were led by Standards Division director Shaila Nijhowne (in fact, she would receive a career excellence award in 2001 for her work at the agency, including for her contributions to NAICS). The three statistical agencies met at regular intervals to reach agreement.

The new system was implemented for reference year 1997 for Canada and the United States, and the following year for Mexico, when it was to conduct its economic census. The new system contained a completely new sector on information and cultural activities, greater prominence of business services, and less emphasis on manufacturing. Statistics Canada began publishing data from the System of National Accounts using NAICS in 2002 and began the work of recasting past series.

With NAICS in place, the agency began working with the statistical office of the European Union (Eurostat) toward a common industry classification for Europe and North America by 2007. A two-year pilot was also launched to assess the feasibility of developing common lists of products across Canada, the United States and Mexico. This pilot was called the North American Product Classification System, and it started with five service industries for which a comprehensive list of products was developed in 2000.

Science and technology statistics

When the 2007 Strategic Program Review resulted in the cessation of many of the projects funded by the Data Gaps initiative, the core Information System for Science and Technology was considered fundamental to the national statistical system and was preserved. The government had launched the new Science and Technology Strategy in 1996, and, in fact, the Data Liberation Initiative was part of this strategy. Two years earlier, the government had announced its intention of reviewing federal science and technology to investigate how federal investment could create economic growth and jobs, and it subsequently launched a long-term consultation process. One of the outcomes of that review was the new Information System for Science and Technology project to develop indicators of activity and a framework to paint a picture of science and technology in Canada. In collaboration with Industry Canada, the agency was developing statistical measures in the areas of innovation systems, innovation, government science and technology activities, industry, and human resources.

THE SURVEY OF FINANCIAL SECURITY

Funded through the Data Gaps II initiative, the 1999 Survey of Financial Security collected information that had not been available since 1984. It provided policy makers with information about at-risk groups, student loans and the distribution of wealth, and helped them understand how well Canadians were prepared to support themselves in the event of major changes such as a long-term illness, retirement or job loss. Although the survey was conducted again in 2005, permanent funding was not established, and it wound down when the Policy Research Data Group investment fund was reduced as a result of the 2007 Strategic Program Review.

Measuring commerce in new ways

The SARTRE program had nothing to do with the French philosopher, unless you count Jean-Paul Sartre's influence on disciplines such as sociology. The program was the Small Area Retail Trade Estimates program, which was formalized in 1999 as a new custom program to produce annual estimates on retail trade and the number of stores within a small geographic region (by the first three digits of the postal code for urban areas and by all six digits for rural areas). The estimates were produced by combining the Annual Chain and Department Store Survey and the tax returns from corporations. The cost-recovery program was terminated and the agency stopped producing the custom data tables in 2007.

With the expansion of the use and availability of the Internet came new opportunities — not only for government agencies, but also for businesses — to carry out transactions with both their consumers and their suppliers. In August 2000, the agency released results from the first cross-economy survey on the use by businesses of information and communication technologies and electronic commerce. While virtually all public sector institutions were using the Internet, roughly half of all businesses were active online, with only 1 in 10 using the Internet to sell goods and services at the time.

Improving measures of trade

Until the mid-2000s, Statistics Canada was measuring export price indexes mainly by assuming they were equal to domestic price indexes multiplied by the currency exchange rate. Import prices were often measured by assuming they were equal to price indexes from the United States or other countries, again adjusted by an appropriate exchange rate. However, exporters and importers may charge more or less than these assumptions imply—they may "pass through" either more or less of any exchange rate change into their transaction prices. Thus, the agency's methodology was merely an approximation. As exchange rate volatility became more evident in the 2000s, the need for directly measured trade price indexes became more apparent, and the Bank of Canada raised concerns. Accordingly, Statistics Canada began to collect export and import prices directly from importers and exporters and used the resulting price indexes to deflate international trade flow data. The program started with a pilot survey in 2007 with long-term planning funding and eventually became base funded. It continued to expand by including a few additional product classes when funds allowed.

While the 1987 bilateral agreement with the United States on exchanging import data had vastly improved both countries' bilateral trade data, there remained an issue with respect to exports to other countries, which were underreported. Statistics Canada worked jointly with the Canada Border Services Agency (CBSA) in the mid to late 2000s to address the issue, and, together, the agencies implemented an online reporting system to help track non-U.S. exports. In addition, the CBSA strengthened regulations requiring goods to be declared prior to export and increased its enforcement efforts, all of which contributed to reducing the underreporting.

An environment statistics program takes shape

Environmental policy analysis took a downturn in Canada in the late 1980s and early 1990s as the federal government exerted efforts to eliminate its budget deficit. However, Canada's Kyoto Protocol commitment in December 1997 to reduce greenhouse gas (GHG) emissions to 6% below 1990 levels led to the realization that there was a lack of detailed information in this area. This resulted in the formation of a federal statistical working group in 1999 co-chaired by Statistics Canada and Natural Resources Canada to look into priority data needs. The agency

received funding to expand and improve the industrial detail with respect to energy consumption through the Energy Statistics Program, as well as to undertake a survey of energy use of commercial and institutional buildings, and to conduct a feasibility study on apartment building energy use. Discussions also got underway to enable the collection of information on vehicle fuel use and farm energy conservation practices.

In 2000, the National Round Table on the Environment and the Economy led a government-appointed task force to develop a set of environmental sustainable development indicators. Statistics Canada was active on the task force, which recommended six indicators in its 2003 report on the Canadian Environmental Sustainability Indicators. Shortly thereafter, the government announced its intention to implement three of the six, and the agency worked collaboratively with Health Canada and Environment Canada to develop an implementation plan. The indicators covered air quality, water quality for the protection of aquatic life, and GHG emissions, with the first report released at the end of 2005. The second report on the Canadian Environmental Sustainability Indicators was released in 2006, showing among other findings that GHG emissions had continued to rise by 27% between 1990 and 2004, exceeding the Kyoto Protocol target by 35%.

In 2002/2003, the National Round Table on the Environment and the Economy requested that Statistics Canada submit a plan for an expanded set of structured environmental



MAD COW DISEASE

Until 2003, when a breeder cow in Alberta tested positive for bovine spongiform encephalopathy (BSE), or mad cow disease, Canada was one of the largest exporters of beef in the world. Within hours of the news, about 40 countries, including the United States, imposed a ban on Canadian beef products, and the value of exports dropped to almost zero for about three months. Canada had historically relied on the slaughtering facilities of the United States, and, with the border closed to cattle, the Canadian facilities were unable to handle the increased demand. The first case of BSE had been detected in Canadian cattle in 1993, and 10 years after having implemented new monitoring measures, the industry was devastated.

Statistics Canada was called upon to provide new data to the Natural Disaster Assistance team at Agriculture and Agri-Food Canada. A special survey was carried out to provide information about the size of the at-risk cattle population and of the population of slaughter-ready cattle that were typically exported to the United States. The financial and emotional fallout of the event to the industry was dramatic, with millions of dollars lost in revenue every day. The borders to the United States were reopened partially in 2005, but would not be fully opened until 2007. Statistics Canada tallied a loss of $2.5 billion in exports, $2 billion in gross domestic product, $5.7 billion in total outputs, $1 billion in labour earnings, and 75,000 jobs.

accounts. The agency's plan involved working with other departments to make use of existing environmental information and then to determine how to best fill the data gaps that remained, including through a series of new environmental surveys. The agency drafted a plan for the expansion of the System of National Accounts and developed modules on GHG emissions and the environment "industry" to add to existing surveys.

In 2005, the agency was selected ahead of several private companies to carry out a new survey in collaboration with Environment Canada to monitor progress toward the Kyoto Protocol goals on GHG emissions. The GHG reporting project was a high-profile initiative led by Statistics Canada in partnership with Environment Canada, Natural Resources Canada, provincial and territorial governments, and industry. The team developed an Internet-based reporting system harmonized to meet jurisdictional needs, avoid duplication, and minimize burden and cost. The survey collected details on emissions from large industrial facilities emitting more than 100,000 tonnes of GHGs each year. In partnership with Environment Canada and Alberta Environment, Statistics Canada released the first data from this new mandatory reporting system for emissions of six GHGs in 2006. The information contributed to Canada's international GHG reporting, as well as to setting new regulations, targets and timelines for reduction.

In 2006, the agency released results from the prototype Households and the Environment Survey, which was conducted as a Labour Force Survey supplement. It provided provincial-level tables, describing the environmental practices and behaviours of Canadian households. The survey was migrated to a platform based on the Canadian Community Health Survey in 2007, which was thought to be a more suitable frame that would enable joint analysis of environmental and health data.

GENETICALLY MODIFIED ORGANISMS

There was considerable debate coming to the forefront in the 1990s and early 2000s about the health and safety implications of growing and consuming genetically modified organisms (GMOs). Modern genetic modification had begun in the mid-1970s, but concerns began to be expressed almost immediately on potential ramifications of the new technology, and a moratorium was observed until the Asilomar Conference on Recombinant DNA in 1975. The conference drew up guidelines to ensure the safety of experiments using recombinant DNA technology. By the early 1990s, genetically modified food crops began to be consumed by the public; however, there was very little information available on the extent to which GMOs were produced in Canada. The extent of organic farming practices was also unmeasured. Information on both topics was collected through the addition of questions on existing agriculture surveys.

INTERNATIONAL TECHNICAL ASSISTANCE CONTINUES

As well as collaborating internationally on various initiatives to exchange ideas and co-develop processes or systems, Statistics Canada continued to be active in providing technical aid to the statistical administrations of other countries. International technical assistance was mostly funded by the Canadian International Development Agency (CIDA). Statistics Canada's technical assistance extended to countries including Argentina, Armenia, Bangladesh, Brazil, China, Colombia, Cuba, the Czech Republic, Eritrea, Georgia, Haiti, Hungary, Indonesia, Jamaica, Malaysia, the Philippines, Poland, Russia, Turkey and Zambia.

In 1996, the agency began a new international co-operation program with China's National Bureau of Statistics that focused on organizational development, market economy measurement and the building of technical capacity. This five-year, $9.4 million initiative was funded by CIDA to support Canada's foreign aid objectives in China and included training at various levels and in various subject matters. This was known as the Statistical Information Management Project (SIMP). In 1998, the two statistical agencies developed a set of guiding principles to ensure that projects would be pursued in a consistent and effective manner, with a particular emphasis on the sustainability of the activities. The first phase of SIMP was from 1996 to 2004, during which national accounts, household surveys, resource management and a survey skills development course were covered. In fact, Statistics Canada authored a comprehensive training manual on the basic concepts of survey methodology, management, operations, analysis and quality assurance for household surveys to train 30,000 core statistical workers throughout China. Another five-year co-operative effort, known as SIMP II, began in 2005. The second phase of the program was also funded by CIDA, as well as the Chinese Ministry of Commerce, and was aimed at particular social, economic and environmental statistical projects in line with China's international obligations, as well as the use of administrative information.

The work of the voluntary city groups continued, with the model for the first group—the Voorburg Group on Service Statistics—successfully copied into other domains, including the London Group on Environmental Accounting, the Canberra Group on Household Income Statistics, and the Ottawa Group on Price Indices. In the early 2000s, the London Group was focusing on the development of environmental accounts linked



to the System of National Accounts and was drafting a revised version of the United Nations interim handbook on the system of integrated environmental and economic accounting, which was submitted to the United Nations Statistical Commission in 2002. At its 43rd session, which was held in 2012, the Statistical Commission adopted the System of Environmental-Economic Accounting 2012 Central Framework as the initial international statistical standard for environmental economic accounting.

In the early 2000s, the Swiss Federal Statistical Office and the Hungarian Central Statistical Office asked Statistics Canada to conduct peer reviews of their organizations. This was a new type of international work, with a focus on adaptability to evolving needs, effectiveness and credibility. The director of the International Monetary Fund, upon Dr. Fellegi's retirement in 2008, explained that "Ivan led the way in the evaluation of national statistical systems (e.g., those of Switzerland and Hungary) and the wider European statistical system. In the latter case, my own recent peer review of Eurostat drew heavily on Ivan's earlier work. By pointing out strengths and areas for improvement, evaluations help raise the bar on what an efficient and effective statistical system entails. This paved the way for the international statistical community to conduct such evaluations of member country statistical systems."

In 2006, the agency was in discussions with CIDA about a major Canadian international statistical capacity-building initiative that would see a number of countries engaged in long-term technical assistance, encourage other statistically developed countries to do the same, and establish a training institute for top-level managers of statistical offices on management techniques and other issues of particular importance to statistical offices.

A PATH OF CONTINUOUS IMPROVEMENT

Dr. Fellegi had informed the Privy Council Office in 2006 that he wanted to take his retirement in two years' time. His announcement to all staff at the agency was made on February 15, 2008. In June, he retired after 23 years of being Chief Statistician and 51 years after joining the agency in 1957. His retirement ceremony was broadcast on the desktops of employees, another first at Statistics Canada. Invited speakers gave testimonials, either in person or via video. International accolades were shared from the World Bank, the United Nations, the International Monetary Fund, the National Bureau of Statistics of China, the Organisation for Economic Co-operation and Development, and the International Statistical Institute, as well as the chief statisticians of numerous countries.

On that occasion, it was announced that in Dr. Fellegi's honour, the boardroom on the executive floor of the R.H. Coats Building would bear his name. He was also awarded the title of Chief Statistician Emeritus by then Prime Minister Stephen Harper, and he continues to this day to come to his office (10 years after his retirement) to provide advice and lend a willing ear to anyone who seeks his counsel.

Under Dr. Fellegi's tenure, the agency had been ushered into an era of stability and of confidence. He captained the ship that successfully weathered the budgetary tides while strengthening the agency's reputation at home and abroad. Because of his belief in the importance of paying attention to the spirit of innovation during lean years, the agency's research and analysis capacity grew and prospered. His legacy also included robust human resource strategies with a strong training program, a strengthened and integrated economic statistics program,



Ivan P. Fellegi at his farewell party, 2008



"CHANGE IS A CONSTANT FACTOR IN A MODERN INDUSTRIAL SOCIETY. THE CHALLENGE FOR STATISTICS CANADA IS TO MONITOR AND REPORT ON THE MANY ASPECTS OF CHANGE, PROVIDING AN INFORMATION BASE THAT EQUIPS CANADIANS TO BUILD ON THE PAST AND SHAPE THE FUTURE."

– 1984/1985 ANNUAL REPORT

a rich and outcome-focused social program, much-improved media and respondent relations, a strong statistical infrastructure with a robust Business Register, and stellar classification systems and methodological capacity. Statistics Canada had shifted into an international leadership role.

The agency has come a long way since the formation of the Dominion Bureau of Statistics in 1918. Over the course of the agency's history, the process of change has been experienced as a massive upheaval at times, and sometimes as a slow and steady progression. You have no doubt heard the adage "history repeats itself." This is true, as well, in the life of a statistical agency. Sometimes change seems quite tangible, such as in the 1930s, when the bureau's resident inventors — A.E. Thornton and his assistant Fernand Bélisle — designed and built custom tabulation machines. However, growing information needs and constantly shifting technologies for gathering, compiling, analyzing and disseminating information are not new. One could argue they have never been new. As the world around us evolves, so do the tools and processes harnessed to cope with the statistical needs of an ever-more-quickly changing society. But the need to adapt to change has always been present.

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