Chapter 2: WANE Methods

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Research Design

To address the broader WANE study objectives (see Preface), a case study research design was employed whereby multiple data sources are used to establish an in-depth understanding of a given research problem in a particular context (see Marshall 1999 for an overview of our approach). This method allows for the consideration of multiple points of view that, when taken together, permit a better understanding of the relationships among members in a given organization (Ragin 1987, 1994, 2000). Thus, the intensive data provided by multiple staff from the same firm reveal different perspectives on parallel work experiences. A key strength of this case study approach is its ability to "produce a description of the complexity of social life" (Marshall 1999: 380). Comparing cases informs us about how different types of institutions and institutional arrangements work and how they affect relationships among their members. We can assess the link between social, economic and political processes and institutional arrangements in the workplace and their ultimate effect on workers. Case studies do not provide a statistically representative sample, and therefore, cross-national and cross-company comparisons must be made on an "interpretive basis" (Marshall 1999: 387). This means that case study analyses must be informed by theoretical and contextual considerations.

In WANE, a case is broadly defined as an IT firm. Criteria were established for firms to be eligible for participation in the study. First, they needed to be comprised of

mostly software-related IT occupations. This often, but not always, corresponded to specific industry codes[1]. Firms had to be in operation at least one year and have four or more staff. The conditions of participation could not compromise data collection. Thus, firms were required to support employee involvement in the study, provide access to HR documents, and in most cases, allow researchers to observe on site for a predetermined amount of time. A focus on smaller businesses was salient as very little research on IT work has considered small to medium-sized enterprises (SMEs), which are in fact quite prevalent in all of the study countries. For example, in 2001, 96 percent of firms in Canada and 93 percent of computer services businesses in the United Kingdom (UK) employed less than 10 people (Da Pont 2003; Bjornsson 2001). Similarly, in Australia, 88 percent of IT firms employ 0-4 workers and 29 percent of IT workers are employed in small firms in 2001 (Brooke, Jones, and Topple 2004).

Within each country, IT firms were further targeted on other criteria suited to the particular region and industry context. Geographical location was a primary and effective means of seeking participants, for convenience and cost effectiveness, and also because of the proximity, and in some cases, association of researcher post-secondary institutions with sector "hot beds"—regions in which there is a relatively high concentration of IT activity. Table 2.1 below outlines the cities and regions from which the case studies were selected in each country. In some regional contexts, particularly Australia and England, case firms were also monitored in order to maximize heterogeneity beyond the baseline conditions outlined above. Criteria in this regard included IT sub-sector, firm ownership

[1] e.g., North American Industry Classification System (NAICS) code 54151– Computer Systems Design and Related Services; Australia ANZSIC code 783 - Computer Services Industry

arrangements and management structure, and the demographic composition of staff (e.g., gender, age).

Table 2.1: City/regional representation of case study firms

Team	City/Region
Australia	Melbourne, Sydney, Brisbane, the Gold Coast
Canada	London, Ottawa, Calgary
England*	Cambridgeshire, West Midlands, London, South East England, South West England
United States	North Carolina (NC) - Research Triangle Region, Florida (FL) - Tallahassee

**this team was also involved in a case study of a German IT firm. Researchers in Germany and the Netherlands conducted a further 8 case studies in those countries*

Such variation in the selection of firms into the sample creates a potential for bias, as some may have been specifically targeted or are particularly sensitive to certain workforce issues. This would be problematic if the aim of the study was to illustrate broader trends and to generalize these findings to the IT industry as a whole; however, the intent here is to use mixed methodology to document experiences and processes relating to IT work at one point in time. There is the opportunity to consider working in the information technology sector from the perspectives of employees, managers, consultants and owners in firms of similar size across four countries. Thus, for our purposes, this type of sampling is appropriate.

Case Study Sampling, Key Informants, and Company Access

National teams developed sampling strategies that were best suited to the particular context and contours of their locations and industries. Thus, potential participant firms were approached in ways that varied by national region. Despite the existence of country-specific industry classifications, there were few, if any,

comprehensive listings available for IT businesses. As a result, research teams used a number of strategies to identify samples of firms. City and IT business directories, media coverage, and business and personal networking with key informants were employed to varying degrees to define sampling frames and to recruit participant firms in each national region. Teams in Canada and the U.S. relied largely on a sampling frame strategy and key informants; Australia and England employed media releases, IT business directories, key informants and a business information kit.

In Canada, a sampling frame was defined in each locale (London, Ottawa, Calgary) using city and IT business directories (n=178). Then a series of short, sampling frame telephone surveys (n=100) were conducted in spring 2004 to gain access to firms and to learn more about the local IT landscape. Data were collected at this stage to inform regional IT context and case firm eligibility. Sampling frame respondents, usually firm owners or senior management personnel, were asked basic questions about the firm (e.g., how long the firm had been in business, what products or services they provided, etc.), its workforce (e.g., number of employees, demographic composition) and the IT field in general (e.g., subcontracting, skilled worker shortages). They were also asked if they would be willing to be contacted again about involvement in case studies and/or key informant interviews. Virtually all of the Canadian case firms were recruited through this sampling frame interview process; one case came from a contact list provided by one of four key informants.

The U.S. NC Team also employed a similar sampling frame methodology, drawing on regional professional association directories. Those who completed a sampling frame survey (n=59 in NC) and whose firms were eligible (see criteria above)

were asked if they would participate in a key informant interview; snowball sampling was used to recruit additional key informants. In-person, key informant interviews (n=46) were conducted with industry representatives and business executives in order to learn about their perspectives on IT employment and workforce aging issues. These interviews also aided in the identification of firms that might be suitable for, and amenable to, participation in case studies. Because there were many fewer IT firms in the Tallahassee region, the U.S. FL team directly recruited off a regional listing of IT firms.

Australia took a different approach to recruitment, foregoing the sampling frame interview method. Instead, the team used print media releases to raise awareness about the study and also disseminated study information to local business councils and technology networks. A formal business information kit was created for distribution through these various channels and interested parties returned an enclosed 'expression of interest' form to the team, which initiated the case study process. Many Australian case firms were therefore self-selected into the project; additional firms were tapped through referrals and social contacts.

For their research in England, the UK-based team employed media releases and an information kit. They also enlisted the help of the UK employer organization for the IT sector, which circulated details of the study to its members. One firm was recruited in this way; the rest were approached directly, cold-calling using contact information from technical directories, listings and recommendations. Case firm recruitment in the other European countries employed media releases, personal contacts (the Netherlands) and formal networks (Germany).

Negotiations with potential case study firms began in mid-2004 and field work continued through early 2006. Table 2.2 shows the general time frame for the case study-related field work in each country.

Table 2.2: Time frame for the case study field work

Region	Case study start	Case study end
Australia	October 2004	March 2006
Canada	September 2004	October 2005
England	May 2004	May 2005
United States	July 2004	February 2006

In most cases, negotiations entailed a series of telephone conversations and eventually a meeting between the research team leader and the company executive—usually the firm owner(s) and/or senior management. Owners and managers who agreed to have their company participate in the study signed a case study agreement form on behalf of the firm, outlining mutually determined parameters of participation. Typically, firms agreed to supply employee contact information, access to HR policies and employee participation time. In return, the research teams pledged to provide the participating company with first access to international research reports. Feedback reports were also provided to each firm in Canada and the U.S., and also to the larger English firms.

Data Collection

An ongoing requirement in our case study method was to establish a detailed context for each case and this was accomplished by collecting data from a range of sources. Table 2.3 summarizes the primary sources of information and their formats:

Table 2.3: WANE data sources

Type of data	Description & Format
Observational notes	Typed/handwritten notes recorded after each visit Format: electronic documents
Archival data	Publicly available sources such as newspaper articles and websites, as well as firm-specific policy and documents Format: mix of print and electronic
In-depth interviews	Face-to-face interviews Format: tape- or digitally-recorded and transcribed; electronic documents
Web surveys	Self-administered, online questionnaire; quantitative data compiled by hosting firm, MSI Format: quantitative data sets (i.e., SPSS) and individual electronic report summaries

Whenever researchers entered a firm, they took *observational notes* about the environment and how work is structured. These notes were recorded after most company visits, including negotiations and interviews. *Archival data* were also collected for each case study company from publicly available sources such as business trade journals, magazine or newspaper articles and company websites, as well as firm-specific newsletters, human resource policy documents, annual reports and collective agreements. Where applicable, (not all firms had such information available) HR documents and policy related material were provided by the CEO or administrative/HR staff. Finally, we conducted both *in-depth, qualitative interviews* and self-administered *web surveys* with managers and employees at each case study firm.

In-depth interviews were conducted with company executives, human resource managers, and employees in various occupational groups. Respondents were asked about their personal histories and experiences with IT work, and for management, their views about the IT field in general. As well, demographic attributes (e.g., gender, age, job title, tenure at firm, family status) were gathered from the interviews for each participant. The number of interviews targeted at each firm depended largely on characteristics of the

organization, such as number of employees and occupational groups. For many of the firms, and particularly the smaller ones, all employees and managers were invited to take part. In some cases, however, research teams solicited a particular profile of respondents using characteristics such as age, gender, occupational role or length of tenure; in other cases, management made autonomous exclusions—such as those in certain roles (e.g., non-IT positions) or contract workers.

The firm provided contact information for potential participants, usually most or all of their employees, and qualitative interview invitations were delivered to each person. Employees were then contacted by telephone or email to see if they might be interested in participating. If an individual declined the request, there was no further attempt to involve that person. For those who agreed, a convenient time was arranged for an interview. Most interviews took place in a private office or meeting room at the respondent's place of work; occasionally, they occurred in a coffee shop, off work premises or via telephone at the discretion or preference of the interviewee. In some cases, a company liaison facilitated the scheduling. Interviews were recorded on tape and/or digitally. They generally lasted for about one hour, but ranged from 30 minutes to upwards of three hours. The Canadian team conducted 24 additional interviews—11 with contract workers, 8 with former large-firm workers, and 4 key informants. As well, U.S. researchers completed 35 key informant interviews alongside their case firm interviews.

Managers and employees were invited to complete a self-administered *web survey*. The online strategy suits this project as IT professionals are well-versed with computers and web applications. We would have provided a paper version of the survey if that was the preference; none of the respondents made this request. Invitations to

participate in the web survey were typically distributed following the in-depth interview; in some cases they were emailed to respondents beforehand or without an interview at all. Each person was given a unique ID and password that were used to access the survey. Respondents were generally sent an introductory letter by WANE researchers, followed by a series of automatically generated emailed reminders.

The web survey solicited information about demographic characteristics, work history, attitudes about older and younger workers, non-standard employment practices, and so on. Retrospective questions about life course transitions, using well-established procedures that map out the timing and sequencing of individual lives, were also included (Marshall et al. 2001). Web surveys took approximately 40 to 60 minutes to complete and could be filled out at the discretion of respondents from any location with internet access. An important feature of the survey was the ability for respondents to complete it in stages, over days or weeks as required. The qualitative and quantitative components of this research are complementary, with the former providing information on meaning and process and the latter providing data that allows us to describe, contextualize and, to a limited extent, make generalizations about the nature of work in IT firms.

Management input and logistical considerations meant that not all employees in all firms were targeted for inclusion, particularly in larger companies. Across the 47 case study firms in four countries, there were 399 in-depth interviews and 452 web surveys (49 of those were partial completions). There was significant, but not perfect, overlap between the interviews and web surveys: 45 percent of respondents did both; 23 percent completed an interview but no survey, and; 32 percent filled out a web survey only. This

variation reflects both participant and researcher-initiated selection processes. Table 2.4 shows how the interviews and surveys are divided among the four countries:

Table 2.4: Interview participation, survey response, and partial completion rates

Region	Interviews		Surveys			
	#	participation rate (%)[1]	#	response rate (%)[1]	# complete	partials (%)[2]
Australia	91	82	81	22	69	15
Canada	141	81	107	60	94	12
England	61	100	125	75	117	6
United States	106	90	139	50[3]	123	12
Total	**399**	**86**	**452**	**46**	**403**	**11**

[1] participation and response rates are calculated using the number of interview transcripts/survey records out of the number of *eligible* respondents at each firm; eligible respondents are those who were invited to participate in the study

[2] "partials" refers to the proportion of incomplete survey records (i.e., those who completed at least the first section, but did not complete the entire survey; does not include question non-responses)

[3]One U.S. case, a medium firm of 100+ staff, experienced complications with data collection as company officials had not fully bought into study participation and as such, the project never really took off in that location. Removing these cases from the U.S. response rate yields a cleaned response rate of 67%. Responses from this company remain available for analysis.

The overall participation rate for the interviews is 86 percent, ranging from 81 percent in Canada to 100 percent in England. This figure represents the number of viable interview transcripts (i.e., electronic failures are excluded) out of the total number of eligible participants in each country. As noted previously, both researcher considerations and management dictates meant that not all employees at all firms were invited to participate. The participation rate reflects both direct and soft refusals from potential interviewees, as well as those who may have agreed but did not participate for whatever reason. The English team engaged in negotiations with managers and requested interviews once they were on site, which served to augment their participation rate.

The overall survey response rate is 46 percent and ranges from a low of 22 percent in Australia to 75 percent in England. These rates are influenced by lower participation in larger firms, where nearly all employees received a survey invitation, yet

had little or no contact with the research team. In smaller firms, most or all employees were interviewed. This response rate was also impacted in certain firms where management felt there was too much overlap between the interview and survey content. Most respondents (n=403, or 89 percent) completed the survey in full; regional partial completion rates were between 6 and 15 percent.

Ethics

Research involving humans and under the auspices of a post-secondary institution must be approved by an ethics review board. Prior to entering the field, research teams from each national region were required to submit an application for ethics approval at their home institutions. This process aims to preserve the personal rights and dignity of participants by minimizing risks and outlining best practices for gaining consent and preserving the confidentiality of all data collected over the duration of the study.

Consent forms were signed by all case study participants. On this form, respondents were informed that they could refuse to answer any questions asked and could decide to end participation at any point. For telephone interviews, informed consent was sought verbally. All ethics protocol was followed. Participants (both firms and individuals) are identified by ID number and transcripts have been blinded to eliminate traceable information, such as surnames, products, websites, client names and associated business names. Further, information provided by employees was not revealed to their employers.

In terms of data storage, all audio tapes, written records, transcribed interviews, notes and other relevant information are kept in locked filing cabinets in locked offices.

All project data is stored on a secure server and tapes will be destroyed after analysis. The web based survey is housed on a secure site requiring password access. Only the principal investigator, co-investigators, their research staff, and the company responsible for administering the web survey have access to raw data.

Data Management

The WANE team contracted a private firm, MSI International, to process the web survey responses and to provide data sets, open-text responses and a methodology report. As the data from the self-administered online surveys came in, researchers produced summary statistics such as frequencies, means and cross-tabulations.

For the qualitative data, all in-depth interviews were transcribed verbatim, entered into a qualitative data analysis software package (Nvivo) and coded by identifying meaningful themes and trends. The transcripts were coded in Nvivo using very general categories, or 'housekeeping codes,' which were intended to provide some basic organization to a very large volume of data (Lofland and Lofland 1995). There are six broad categories of codes reflecting the proposed research questions: A) Employment relations, B) Diversity (e.g. gender, age, ethnicity, class), C) Life course transitions, D) Human resources management, E) Current employment, and; F) Health) and 20 separate housekeeping nodes, or containers of interview text within the larger categories.

In order to facilitate comparative case analysis, the research team developed a case study document template. This template was designed to address the five proposed research objectives, to provide a description and history of each case study firm and also to consider policy implications. A case study report was written for each case study firm.

Additional comparative analyses are being conducted by pooling within-country case studies and examining differences and similarities across geographical regions, size of firm, type of firm, and so forth. In this way, we can look for explanations first within firms, then within the context of a single region (Australia, Canada, England, U.S.), then within the multiple contexts of region, size, type of firm and other factors that emerge as relevant.

Sample Characteristics - Firms

From mid-2004 through early 2006, 47 firms took part in the study, with 586 unique individuals participating in interviews and/or web surveys, responding to questions on a wide range of topics. To formulate a descriptive snapshot of the sample of IT firms and workers in this study, a sample profile was compiled using demographic variables and individual- and firm-level information collected during the course of the field work. Table 2.5 presents a firm-level profile broken down by country of size/number of employees, age of operation and company specialization.

Table 2.5: Firm characteristics

	Region				**Total**	
	Australia	**Canada**	**England**	**U.S.**	**n**	**%**
Firm size						
4-20	9	17	4	7	**37**	79%
21-99	1	1	2	3	**7**	15%
100-250	1	0	1	1	**3**	6%
Firm age						
>5 years	2	4	3	2	**11**	24%
5-10 years	5	6	2	6	**19**	40%
11-20 years	2	7	1	3	**13**	28%
21+ years	2	1	1	0	**4**	8%

Firm specialization						
Software/web development	6	13	7	9	**35**	75%
Systems analysis/support	1	1	0	1	**3**	6%
Consulting/business	4	4	0	0	**8**	17%
other	0	0	0	1	**1**	2%
# Case study firms	**11**	**18**	**7**	**11**	**47**	

Keeping with the project's interest in understudied small and mid-sized businesses, the majority of case study firms (n=37, or 79 percent) are quite small, employing just 4 to 20 people. Seven firms employed between 21 and 99 workers and three had between 100 and 250 staff.

Pinpointing how long these firms had been in business proved challenging because many had experienced an assortment of mergers, divisions, and name changes. Thus, the reported year of inception may vary on these terms. From the data on offer, firms were in operation on average 9.8 years; however, nearly half were less than 8 years old. Three-quarters of the firms were involved with software and/or web development. Six percent of the firms focused on systems analysis and support functions and 19 percent were involved in consulting, business or other endeavours.

Sample Characteristics - Participants

Demographic attributes collected during in-depth interviews help to provide a snapshot of the IT workers in our study. Table 2.6 contains a sample profile by country of select demographic characteristics of those who participated in the interviews (I) and web-surveys (S).

Table 2.6: Sample characteristics

	Australia		Canada		England		U.S.		all regions	
Interview/Survey	I	S	I	S	I	S	I	S	I	S
N	*91*	*81*	*141*	*107*	*61*	*125*	*103*	*139*	*399*	*452*
Age (in years)[1]										
mean	37.6	38.1	37.2	37.4	40.0	37.8	40.0	38.7	38.4	38.0
median	37.0	35.0	37.0	38.0	39.0	36.0	41.0	38.5	38.0	37.0
range	21-61	23-62	19-62	20-63	22-63	21-64	23-63	20-63	19-63	20-64
% age 45+	27.6	27.9	24.8	19.8	33.3	27.4	33.3	28.7	28.9	25.8
Gender										
% female	40.7	34.8	23.4	23.4	26.2	23.1	26.4	30.6	28.6	27.5
% male	59.3	65.2	76.6	76.6	73.8	76.9	73.6	69.4	71.4	72.5
Marital status										
% married/cohabiting	75.9	75.7	65.9	68.1	71.2	73.7	80.8	71.4	72.8	72.1
% single/never married	17.7	20.1	25.2	22.3	20.3	19.5	13.1	23.0	19.6	21.3
% separated/divorced	6.3	4.3	8.9	9.6	8.5	6.8	6.1	5.6	7.5	6.4
Parent status										
% with children	45.9	45.7	54.4	51.1	67.9	51.7	61.6	47.6	56.4	49.3
Minority status[2]										
% visible minority	17.6	5.8	6.4	9.6	6.0	5.1	20.7	15.4[2]	12.6	9.4

[1] For the interviews, "age" was reported at the time of the interview; for the surveys, "age" was calculated as @ 2005 using the respondent's birth year; this is reflected in discrepancies in age range

[2] U.S. survey respondents were asked a filter question "Are you Spanish/Hispanic/Latino" followed by a "select all that apply" race question; all other regions were asked "Are you a member of an ethnic/visible minority group?"

Survey and interview samples overlap considerably and their descriptive statistics correspond closely; for illustrative purposes, the interview data will be discussed here. While we make no claim that the sample is representative of the IT industry as a whole, the profile is comparable to reports of industry and labour force composition (e.g., Gunderson, Jacobs, and Vaillancourt 2005 for Canada). In particular, our sample reflects industry trends in the distribution of gender (male-dominated) and age (generally younger than overall labour force averages).

Interview participants ranged in age from 19 to 63, with a mean of 38.4 years. In England and the U.S., respondents were, on average, slightly older (40 years) compared to Canada and Australia (~37.4 years). Labour force statistics from Canada indicate a mean age for IT workers of 36.4 years with an even lower average (35.4 years) for

private sector firms (Gunderson, Jacobs, and Vaillancourt 2005). Interest in workforce aging issues on the part of the research teams, and potentially by some of the respondents themselves, may have contributed to a slightly higher average age of participants. The sample is male-dominated—nearly three-quarters (71 percent) are men; the proportion of women (29 percent), while low, is comparable to industry averages (e.g., 27 percent in Canada - Gunderson, Jacobs, and Vaillancourt 2005). Most of the respondents (73 percent) are either married or in common-law relationships; about one-fifth are single/never married and 7 percent are separated, divorced or widowed. More than half (56 percent) are parents. A small proportion of respondents (12.6 percent) were identified as visible minorities. There were considerable regional differences in this designation, with Australia and the U.S. having higher proportions of visible minorities in their samples, compared to Canada and England.

In addition to demographic characteristics, occupational data were collected in the surveys and through descriptive information contained in the in-depth interviews. From the surveys, 80 percent of respondents report working in one of 26 IT/technical roles, while 20 percent held non-IT positions. Interview respondents were asked about their job and tasks and ten broad occupational categories were distilled from this more detailed qualitative data. These job groupings were further refined into IT/technical roles (programmers, engineers, technicians), IT/other roles (analysts, other), non-IT roles (administration, HR, sales/marketing), management (IT managers) and CEOs/Presidents. By and large, most respondents (79 percent) work in positions that entail a considerable technical component—programmers, engineers, technicians, analysts and IT management. Table 2.7 contains a sample profile by country of occupation-related

characteristics of the workers who were interviewed. Australia and Canada included some contract workers in their samples, while England and the U.S. did not. In some cases, based on the nature of their employment relationship, these workers would have been excluded from the original contact list by firm management. Finally, for job tenure, respondents were employed with their firms for a mean of 5.1 years. There was some regional variation, with English employees more likely, on average, to have longer tenures (7.5 years) and American workers shorter ones (3.3 years).

Table 2.7: Interview sample characteristics - occupations

	Australia	**Canada**	**England**	**U.S.**	**all regions**	**n**
Occupation						398
IT/technical role %	48.4	41.8	37.7	36.2	41.2	164
IT/other role %	14.3	14.2	14.8	34.3	19.6	78
IT/management role %	19.8	17.7	23.0	17.1	18.1	75
Non-IT role	9.9	13.5	13.1	6.7	10.8	43
CEOs/Presidents	7.7	12.8	11.5	5.7	9.5	38
% contractor	7.8	12.1	0	0	6.3	398
Job tenure (in years)						
mean	5.2	5.3	7.5	3.3	5.1	388
median	3.0	4.0	7.0	2.0	4.0	
range	0-29	0-21	0-30	0-19	0-30	
N	*91*	*141*	*61*	*103*	*399*	*399*

Given the skewed composition of the IT workforce in general, it is also worthwhile to consider the distribution of occupational roles by gender and by age. In Table 2.8, the same job roles are broken down along these lines. Generally, men are concentrated in the technical (47 percent) and management roles (22 percent), and also as upper management/owners (12 percent). Women are less prevalent in these jobs; however, they are overrepresented in the IT/other category (33.3 percent), which includes titles such as ‘business analyst’ and ‘technical writer,’ and more importantly, in the non-

IT roles (24 percent), such as administrative assistants and human resources personnel. Thus, while overall female composition of the sample is comparable to overall IT labour force statistics, it is worth noting that women in this study were somewhat under-represented in the technical roles.

Table 2.8: Interview sample characteristics - occupations by gender and age

Occupation	**Gender**		**Age**	
	women	men	>45	45+
IT/technical role %	27.2	46.8	49.1	27.5
IT/other role %	33.3	14.1	19.1	19.3
IT/management role %	12.3	21.5	19.1	17.4
Non-IT role	23.7	5.6	6.0	19.3
CEOs/Presidents	3.5	12.0	6.7	16.5
% contractor	8.0	5.6	7.1	3.7
Job tenure (in years)				
mean	4.5	5.4	4.0	7.8
median	3.0	4.0	3.0	5.5
range	0-26	0-30	0-17	0-30
N	*114*	*284*	*267*	*109*

Book Chapter Methodology

The WANE project offers qualitative and quantitative data from an international sample of information technology firms and workers. This methods chapter reviewed the WANE research objectives, case study research design, sampling, ethics, data collection and management, and preliminary analysis techniques for the larger study, as well as provided a summary of some of the basic characteristics of the participating firms and individuals. Methodological specifics for analyses contained in each chapter, such as coding conventions or analytical processes, are taken up separately in the relevant chapter.

In all of the chapters, participants and firms are identified by a unique numeric identifier which is consistent across all publications that use WANE data. This allows readers to track the use of data across publications.

References

Bjornsson, K. 2001. Computer services: Strong employment growth and low labour productivity despite high labour costs and a highly-educated labour force. *Statistics in focus: Industry, trade and services*, Theme 4-11/2001. (Catalogue no. KS-NP-01-011-EN-I). Eurostat: European Communities.

Brooke, L., L. Rolland, E. Jones, and C. Topple. 2004. *Australian country report.* WANE International Report no. 3. London, ON: The University of Western Ontario, Workforce Aging in the New Economy (WANE).

Da Pont, M. 2003. Building the perfect system: An analysis of the computer systems design and related services industry. *Analytical Paper Series- Service Industries Division, Statistics Canada* (Catalogue no. 63F0002XIE-No. 45). Ottawa: Statistics Canada.

Gunderson, M., L. Jacobs, and F. Vaillancourt. 2005. *The information technology (IT) labour market in Canada: Results from the Software Human Resource Council (SHRC).* Ottawa ON: Government of Canada, Sector Council Program.

Lofland, J., and L.H. Lofland. 1995. *Analyzing social settings: A guide to qualitative observation and analysis.* Belmont: Wadsworth.

Marshall, V.W. 1999. Reasoning with case studies: Issues of an aging workforce. *Journal of Aging Studies* 13(4): 377-389.

Marshall, V.W., W. Heinz, H. Krueger, and A. Verma, ed. 2001. *Restructuring work and the life course*. Toronto: University of Toronto Press.

Ragin, C.C. 1987. *The comparative method: Moving beyond qualitative and quantitative strategies*. Berkeley: University of California Press.

Ragin, C.C. 1994. *Constructing social research*. Thousand Oaks, CA: Pine Forge Press

Ragin, C.C. 2000. *Fuzzy-set social science*. Chicago: The University of Chicago Press.