Case Study Proposal:

"Work, Learning and Technological Design in the Ontario Public Sector"

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**"Work, Learning and Technological Design in the
Ontario Public Sector:
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Summary**

In partnership with labour unions, government and business, this case study shall explore the 'learning and work relations' and the role of advanced information technology (IT) design in the Ontario public sector as they involve the government's use of 'Service Delivery Model Technology' (SDMT) – a web-based social assistance (i.e. welfare) management/delivery software system. This research focus represents a form of advanced IT change closely associated with the emergence of the new economy, and it helps us understand one of the largest, most capital intensive and most recent IT-based organizational change efforts in the history of the Canadian public sector.

Specifically, the study shall explore activities in five different workplaces representing several different organizational levels of the design and implementation process:1) front-line service delivery (3 work-sites shall be investigated); 2) technical and training support services (1 work-site shall be investigated); 3) IT design activity (1 work-site shall be investigated). Work activities, learning and SDMT design, implementation and the ongoing re-design (possible vis-à-vis web-based nature) form a complex system of relationships that must be critically contextualized as well as examined across the multiple organizational levels if they are to be adequately grasped. Interviews (n=75) and direct observation of key organizational activities in each research sites shall be carried out. Key variables that will be addressed include organizational size, region and type, gender, educational level, union activism and disability. Following the interviews and direct observation, a survey of all Ontario case management workers (i.e. front-line service delivery) will be developed and administered in consultation with non-academic research partners. This will serve to verify the qualitative data and link understandings of this work and learning practices with those of wider population as investigated in the Livingstone, Doray and Myles survey. As the SDMT design and implementation process is expected to incur significant job loss amongst case management workers, issues of labour adjustment and future career pathways, in particular for women workers seeking to build on their IT-based skills, will also be addressed. Members of each workplace will be given the opportunity to become trained in research methods and work along side graduate student researchers.

The study will address significant gaps in multiple research literatures that revolve around a lack of careful attention to everyday communication and interaction within work/learning/IT design processes, and a lack of attention to the ongoing IT design potential of web-based software systems across complex organizations. The study will also address a more general gap in work-based research that is related to narrow and/or relatively unsophisticated conceptualizations of learning. Finally, the public sector has not been the subject of research nearly as much as the private sector. Despite there having been notable recent efforts at large-scale survey in the Canadian federal public service and elsewhere, in general terms the quality of this research is low, ignores most of the unique features of public sector work and generally fails to address issues from the standpoint of front-line workers.

A. Description of Research Plan

Sectoral Focus and Populations to be Studied

In partnership with labour unions, government and business, this case study proposed to explore the 'learning and work relations' and the role of advanced information technology (IT) design in the Ontario public sector as they involve the government's use of 'Service Delivery Model Technology' (SDMT) – a web-based social assistance (i.e. welfare) management/delivery software system. This research focus represents a form of advanced IT change closely associated with the emergence of the new economy, and it helps us understand one of the largest, most capital intensive and most recent IT-based organizational change efforts in the history of the Canadian public sector. Specifically, the study explores activities in five different workplaces representing several different organizational levels of the design and implementation process:1) front-line service delivery (3 work-sites shall be investigated); 2) technical and training support services (1 work-site shall be investigated); 3) IT design activity (1 work-site shall be investigated). Work activities, learning and SDMT design, implementation and the ongoing re-design (possible vis-à-vis web-based nature) form a complex system of relationships that must be critically contextualized as well as examined across the multiple organizational levels if they are to be adequately grasped.

Community partners involved are as follows: Canadian Union of Public Employees (CUPE), Ontario Public Service Employees Union (OPSEU), Accenture, Metro Labour Education Centre (MLEC) of Toronto, Advocates for Community-based Training and Education for Women (ACTEW), as well as selected Municipal Services Managers groups (Hamilton, Niagara and Simcoe).

Objectives of Research

This case study follows key research questions of the overall network proposal closely. It will gather and analyze data on the current forms, contents and outcomes of the full array of learning activities associated with each of the three levels of technology design and implementation. The study will also assess the role of recent changes in work conditions in terms of the use of advance, web-based service delivery IT, increasing austerity measures in the public sector as well as public/private partnerships in workplace change on learning activities. Though specific characterizations differ and relatively little empirical work has been done in the area of the public sector specifically, each of these three trends represent dimensions of the New Economy (cf. Menzies, 1996; Castells, 1996; Herzenberg, Alic and Wial, 1998; Burton-Jones, 2000). Furthermore, the case study will analyze differences of work and learning activities amongst occupational groups (front-line service delivery, IT support and IT designers) within this complex organizational system. Other key factors interact with these basic occupational differences, and so research design is organized around the assessment of effects of organizational type (municipal, provincial and private sector), regional context and size (large, medium and small municipalities) as well as effects related to employee educational levels, imputed disability, and gender.

This approach will help to answer four research questions that are unique to this case study:

1) How does SDMT affect labour processes and adult learning in all its forms in the public sector?
2) What is the nature of the potential brought about by web-based software for ongoing IT design, and what are the supports and barriers to effective design and implementation of advanced IT in the public sector?
3) How can the work/learning/IT design processes be improved from the perspective of front-line workers in the public sector?
4) What social, educational and workplace-based policy recommendations might improve processes of work, learning and IT design in the public sector?

Key outcomes of the research will be original scholarly contribution to fields related to work, learning and technological design (e.g. labour process theory, industrial relations, sociology of work, adult education and socio-technical design) in the area of detailed analysis of learning activity, changing economic and social conditions, globalization and the public sector in the form of conference papers, scholarly journal articles, monographs and book publication. The study will also make a timely contribution to current public and organizational change policy in relation to training, technological and work design in the form of union-based and public sector policy discussion papers. Furthermore the study will produce valuable educational materials for those involved in processes of technological-mediated organizational change in the public sector relevant to provincial, national and international contexts.

Research Strategy and Method

The purpose of a case study is to provide in depth analysis of a particular context, in this case the iterative processes of design and implementation of SDMT in the Ontario public sector. A compete schedule of research, training and dissemination activities from January 2003 to January 2006 appears in Table 1 of the appendix. In order to fully grasp the full range of learning activities and to fully contextualize those activities in the complex organizational setting in which they occur requires a inter-disciplinary, multi-methodological as well as a multi-site approach.

As stated above, there are three key spheres of activity: de-centralized front-line service delivery work in the municipalities; centralized support services work in the provincial government; and centralized IT design work amongst personnel employed by the private sector contractor. Each site represents distinct organizational cultures, training and working conditions. The case study as a whole entails data gathering at three different municipal sites representing important regional and organizational variation: Hamilton (large urban); St. Catharines (medium sized sub-urban); and Simcoe (small mixed suburban/rural). And, data will also be gathered from two other sites: support services employees in the Human Services Cluster of the Ontario government and from Accenture's IT design personnel of the Government Industry Group. In total there will be five individual research sites representing the three key spheres of activity. Seventy-five interviews will allow adequate coverage of each of the five social variables:

organizational context; gender; educational level; union activism; disability. In each of these sites, teams of students as well as employee researchers shall carry out semi-structured interviews (with training) on work and learning activity as it relates to SDMT and IT design with a purposive sample of participants at each work site. Participants will be selected in consultation with representatives of those sites who sit on the project steering committee in order to best represent key social variables.

Interviews will be semi-structured with open-ended questions. Questions will focus first on social background including previous educational experiences, and then gather information on the content, context, interactional dynamics of work activity, learning in all its forms (participant's formal schooling background, course-based in house training, self-directed in house computer-based training as well as tacit, unplanned and everyday informal learning that participants do with a range of others) and the design, implementation and re-design processes associated with SDMT. Analysis of responses in terms of the context of learning shall follow methodological perspectives developed in the work of Smith (1987) generally, as well as others who've looked closely at interaction in the workplace including Darrah (1996), Engeström, Yrjö, Miettinen, R. and Punamäki (1999), Billett (1999) and Sawchuk (2002). Each describe relevant means of assessing tacit skills, knowledge and contextual features of the work and activity.

In addition, in each of the five sites researchers will also carry out direct observation ethnographies (with training) of key work/learning situations. Detailed field notes and where appropriate audio-video recordings will provide additional insights into key practices that are either difficult to describe in interviews and/or which display 'seen but unnoticed' (Garfinkel, 1967) tacit dimensions. Micro-analysis modeled after emerging work of in the area of adult learning (see Fenwick, 2001), communication and cognition (e.g. Engeström and Middleton, 1998) and what has been called 'workplace studies' (e.g. Luff, Hindmarsh and Heath, 2000) will provide the conceptual bases for analysis. Together these interview and observational data will provide the means to assess the micro and macro dimensions of learning activities throughout the full range of variation, contextualized in the specifics of each work-site as well as across work-sites with the potential to identify the role of changing conditions of work and social differences amongst participants.

Following this site-based research, a survey instrument will be developed (in the fall of 2004) to assess the reliability of site findings and to extend our understanding of the dynamics across front-line, service delivery workers utilizing SDMT throughout Ontario. This survey will be coordinated and linked to the national survey being carried out by Livingstone, Doray and Myles to further extend findings for their relation to other populations in Canada.

Finally, it is expected that a significant proportion of front-line workers will be made redundant with the full activation of SDMT, thus drawing on site-based and survey research, a leading non-profit agency in the area of re-training for women (ACTEW) will play a lead role beginning in 2004 leading research on labour adjustment activities (15 interviews) with a focus on female employees making transitions into other IT related fields. Finally, MLEC will manage the educational certification (in Organizational Research Methods) of research assistants from CUPE and OPSEU based on their activities over 2003-2004.

Summary of Literature Review

A review of relevant literature on changing conditions of work, learning and IT design in the public sector related to the new economy requires an examination of several sets of research literature for their relationship to three core conceptual assumptions. The first relates to a broad, social perspective on the nature of work and learning. Among other things, this perspective suggests that in periods of change, work, learning and technological design combine to form a complex set of social, political, economic and historical relationships that define both the learning and work process. A case study drawing on this perspective would take the approach that learning, through its full range of variation, cannot be understood as an isolated practice. In other words, learning is *not* only what goes on in individual people's heads, but is instead seen as a participatory activity including the organizational and institutional contexts that give learning meaning, shape learning content and outcomes, distribute resources to support certain types of learning and so forth. Using this type of approach, work/learning/technology-design cannot be investigated strictly in terms of technological use, technological design, training or policy changes. Rather each of these elements must be considered as part of a whole.

Furthermore, a broad, social approach to studying work/learning/IT design suggested that we cannot understand tools, especially new and complex tools such as computer systems, strictly in the abstract context of their design parameters and intended use. Tools can be used in a variety of ways, many of which are completely unanticipated by designers, those who contract them or the managers that oversee work. To be properly understood, technologies must be investigated in the course of critically situated practice over time that includes design and intended use but is not limited to them.

Finally, the recognition of distinct social and occupational standpoints is central to the organization of this case study. When exploring any issue it is important to be aware of the perspective or standpoint from which you are investigating. Most of the research on work, learning and technological-design to date implicitly or explicitly begins from dominant standpoints in organizational settings, such as those of owners, managers, policy-makers, designers, etc. While such accounts offer important information, they also exclude a great deal. Patterns, dynamics, tensions, possibilities and so forth that emerge when we look at an issue from the standpoint of workers are important for filling out the complete picture.

There is no shortage of research that addresses change and the role of computer technology at work. However, this diverse, international literature runs against the grain of each of the three core assumptions listed above: if they address issues of learning at all, these studies focus on learning that is predominantly individualized and formalized; these studies focus on technology largely from the perspective of its formal design purposes and only rarely include technology in use and its realized or potential role in design; and finally these studies, while they may gather data from employees, do not take up research issues from their standpoint and fall consistently short of making recommendations that reflect their experience and concerns. This research turns each of these tendencies on their head to fill key gaps in the literature and to offer the potential of new and exciting new perspectives in an important time of social change.

The Need for Critical Research on the Public Sector. The first major gap in the literature that the proposed research seeks to fill is in the area of careful, conceptually sophisticated investigation of work/learning/IT design and implementation in the Canadian public sector. Questions to be addressed here involve whether or not there are significant differences in working/learning/IT design activities in the public, as opposed to the private sector. Changing conditions of work in the public sector represents a complex and at time contradictory set of dynamics that is distinct from the private sector. How exactly could these differences in work conditions relate to learning and the use of IT? The literature offers few clues. Reviews of sociology of work, industrial relations and organizational studies by Frenkel, Korczynski, Shire and Tam (1999) suggest that few studies have dealt with these questions to date.

Recent large-scale survey work by the federal government in the form of their "Public Employee Survey" series (Treasury Board Secretariat of Canada, 1999, 2001) demonstrates the general character of the changes in working conditions and provide basic documentation of a range of learning activities, but many questions remain regarding how learning actually is accomplished in all its forms. These questions can only be assessed by drawing on the types of open-ended and fine-grained qualitative analyses outlined above.

The Need to Combine Approaches. The questions that emerge from gaps concerning our current knowledge of work/learning/IT design activities in the public sector are difficult to address if we draw on individual bodies of research in isolation from relevant others. Thus, the second major gap in current literatures revolves around the need to creatively combine, congruent perspectives that link the nature of the changing conditions of work with issues of learning and IT design and use.

From the perspective of the proposed research, the most relevant tradition of workplace analysis is what known as 'labour process theory'. Rooted in a response to mainstream sociology of work of the early post-war period, as Robert Heilbroner commented in his review of the influential text "Labor and Monopoly Capital" by Harry Braverman (1974), labour process theory sought to examine the "flesh and blood act of work, the relationships of sub- and superordination by which work is organized and controlled"(1975, p.6). And, it is at this level of analysis that assessments of the actual activities of work, learning and the role of IT design are ideally positioned. Since the mid-1970's labour process theory has developed sophisticated analysis and lively debate over issues of power and control in the workplace (e.g. Zimbalist, 1979; Wood, 1982; Thompson, 1989; Knights and Wilmot, 1990; Jermier, Knights and Nord, 1994; Wardell, Steiger and Meiksins, 1999). Within this literature concepts of skill and training are fundamental. They involve issues of discretion, commitment, communication, cooperation, the formal and informal divisions of labour, the role of technology, but the body does not explore these or other issues with any particularly sophisticated conceptualizations of learning per se.

Therefore, the first type of combination that needs to be made involves introducing a relevant model of learning to the strong political economic and sociological analyses of work offered by labour process theory. Like others in the overall network proposal, this

case study takes up a broad, social learning approach. This type of approach contributes to assessing learning as it occurs throughout its full range of variation including classroom based learning, self-directed learning as well as everyday forms of informal learning amongst co-workers that is both conscious and tacit. Of these, Activity Theory (Engeström, Miettinen and Punamäki, 1999; Engeström, 2001) and related 'sociocultural' approaches (cf. Fenwick, 2001; Bratton and Sawchuk, 2001) are the most applicable. Indeed, recent scholarship has made the case that a basic labour process approach can be combined successfully with Activity Theoretical concepts (Bratton, 2001; Sawchuk, 2002; Livingstone and Sawchuk, in press).

   Another area of weakness within the labour process tradition is in its narrow conceptualization of technological use. With a developed sensitivity to labour process theory, Joan Greenbaum's (1995) work on computer-mediated office work is extremely relevant and goes a long way to link careful analysis of tool-use with the organization of work, but there still is a level of computer-use, that of the micro-interactional processes through which people actively accomplish everyday practice that remains elusive. Although not associated with labour process theory, the micro-analytic work of Suchman (e.g. 1987), Latour (e.g. 1993) and others in the emerging fields of 'workplace studies' (e.g. Luff, Hindmarsh and Heath, 2000) and communication and cognition at work (e.g. Brown and Duguid, 1996; Engeström and Middleton, 1998) have been influential in demonstrating how IT design is an collective organizational accomplishment. Recent work by Suchman (2002) is particularly relevant. Her analysis of information flows and local improvisations within what she calls a process of 'artful integration' of 'indigenous technologies-in-use perspectives' within IT design and implementation will be a key conceptual resource for the proposed research.

Training and Dissemination Processes
Led by the Principal Investigator, research assistants on the project (both graduate students and worker/researchers) will be trained in relevant research techniques including: instrument development, data gathering and data analysis as well as research site relations, report writing, presentation of findings and data-based curriculum development. It is expected that several graduate students will be using the experience as the basis for thesis work as well. The project steering committee will be particularly important for making sure that the research is made available and presented in an appropriate, use-able format to key target groups among them: academic community, public service managers, public sector labour unions, and the private sector consultants nationally as well as internationally. Dissemination will be made in the form of academic journal articles, conference papers, a book, graduate seminars, popular articles such as reports in newsletters and other relevant publications as well as curriculum materials for labour unions. Specialized symposia drawing together scholars working in the field of work, learning and technological design in the public sector will be planned and presented at national and international academic conferences organized by the Canadian Association for the Study of Adult Education in 2004, and the International Researching Work and Learning conference series in 2003 and 2005.

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D. Appendix

Table 1: Schedule of Project Activities

Jan/03 – Mar/03	Research Activities: Complete full-scale review of work, learning and technological design literature; Consultation with steering committee and revise research instruments; Training Activities: Recruit and provide initial training to student/worker research teams.
Apr/03 – Aug/04	Research Activities: Complete site-based data gathering, analysis and create reports; Monthly meetings with research teams throughout this period. Training Activities: Further, hands-on training of student/worker researchers in interview and direct observation methods; initial training in preparation/submission of conference/journal articles scholarly presentations. Dissemination Activities: Present preliminary reports on focus of project at "Third International Conference on Researching Work and Learning" (Finland); submission of site-based journal articles.
Sep/04 – Oct/04	Research Activities: Design of survey of all Ontario case management employees (based on site research and linked with national survey); Develop and report on labour adjustment activities of local unions surrounding SDMT. Training Activities: Hands-on training for student/worker researchers in methods of survey design. Dissemination Activities: Presentation of site-based findings to research partner groups.
Nov/04 – Dec/04	Research Activities: Administer survey. Training Activities: Hands-on training for student/worker researchers in quantitative analysis.
Jan/05 – Apr/05	Research Activities: Analyze and create report on survey. Training Activities: Training for student/worker researchers in report writing; training in adult education curriculum development based on research findings. Dissemination Activities: Prepare and submit book prospectus for "Work, Learning and Technological Design in the Public Sector"; Prepare and present union-based educational materials for provincial, national and international use; Prepare and present report on labour adjustment aspects of SDMT.
May/05 – Jan/06	Research Activities: Write overall case study report. Training Activities: Training for student/worker researchers in scholarly presentations, article submission and publication of research findings. Dissemination Activities: Present findings of survey to relevant research partner groups; Organize and run symposium at "Fourth International Conference on Researching Work and Learning" (Australia); Prepare book-length manuscript "Work, Learning and Technological Design in the Public Sector"; preparation/submission of additional journal articles.

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