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**THE HUMAN FACTOR IN FIRMS'
PERFORMANCE:
MANAGEMENT STRATEGIES
FOR PRODUCTIVITY AND
COMPETITIVENESS IN THE
KNOWLEDGE-BASED
ECONOMY**

*Occasional Paper Number 14
November 1996*



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by Keith Newton, Industry Canada

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PREFACE

The basic message of this paper is simple: the performance of firms depends increasingly on the human factor. To survive and prosper in the knowledge-based economy requires flexibility and speed in learning and applying new techniques and ideas. Learning, for firms and individuals, involves shifting emphasis from the codified knowledge that is the product of structured, hierarchical systems of generating and disseminating information to the tacit knowledge that brings flexibility and creativity. That is why human resource strategies must occupy a central place in overall corporate strategy — to create the conditions in which continuous learning and innovation can take place. And it is why, for governments, also, industrial policy in the knowledge-based economy must increasingly take account of human resource management and development.

The strategies for managing the human factor are in a state of flux: there are many labels but no clear boundaries. The paper seeks to describe some of the interrelated, overlapping firm-level strategies and practices, to look at evidence of their uptake and performance, and to stimulate discussion about possible roles for governments and about future research needs. In short, it is designed to be a scene-setting exercise, a starting point for policy research and development on innovative workplaces.

1. INTRODUCTION

This paper focuses on management strategies, skills, and practices that focus on the human factor as the key to innovation, productivity, and competitiveness. It argues that, in response to a confluence of powerful and turbulent forces in global markets, a new management paradigm comprising both principles and practices is emerging. Certain fundamental *principles* (such as the emphasis on knowledge, ideas and innovation, quality, and a global perspective) are fairly stable. But the *practice* — what managers actually do — varies enormously and is therefore difficult to assess. Yet it is precisely the practice that determines success or failure. Hence it is important to understand what are the general strategies and specific practices with which firms are responding to the rigours of the new competitive regime; what is the incidence of these innovative approaches; what is their impact on performance; what is the role for government in identifying best practice and encouraging its diffusion.

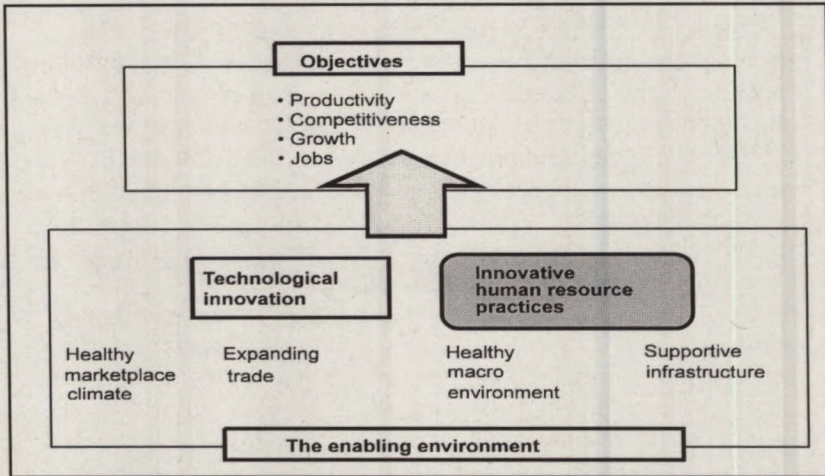
What follows, then, is an attempt to describe some emerging trends in management strategies to pursue productivity and competitiveness in fiercely contested global markets at the turn of the century. The focus is on a set of inextricably linked strategies that come in various guises and with various labels but which, for present purposes, we call

- organizational innovation (OI)
- total quality management (TQM)
- human resource management (HRM).¹

The common element is, of course, the human factor. Indeed, the three sets of management practices (among others, and in varying combinations) are principal components of what has come to be known as the *high-performance workplace* (HPW). The reasons for this focus are simple. First, the productivity and competitiveness of Canadian firms are essential to growth in incomes and employment and as such are at the heart of the national microeconomic agenda. Second, there is persuasive evidence that in

¹ The strategies are distinguished only for expository convenience; in practice there are no clear boundary lines.

Figure 1
People and Technologies:
The Twin Engines of Growth in the KBE



the knowledge-based economy (KBE), the human factor will increasingly be the one that confers a competitive edge.

These ideas are depicted in Figure 1. The ultimate economic objectives of productivity, competitiveness, growth, and jobs are shown at the top of the diagram. Innovation — the driving force of the economy — is fuelled by two critical factors: technological advance, and human resource development. The enabling environment in which the growth process can flourish consists of stable macro conditions, a healthy marketplace climate, vigorous trade, and so on. So from the policy standpoint there are good reasons to investigate high-performance work systems (HPWS) — their characteristics, take-up, and impacts.

This paper does not claim that the concept of a high-performance workplace is new: the dark Satanic mills of 19th century England were, for their time, highly profitable. Nor does it claim that the HPW is a universal panacea. What today is being described and studied under the HPW rubric is *one* set of responses to contemporary challenges and constraints. Nevertheless, there are those who argue — not totally without justification — that the KBE “isn’t all it’s hyped up to be,” that the high-performance workplace is just another management fad and that all the recent emphasis on

"the human element" is unwarranted. These questions are addressed in the specific context of the three strategies described in section 3. Right at the outset, however, it may be useful to make the general case as to what is new about the emerging economy, and why it depends so critically on intellectual capital.

What's New?

Jaundiced observers maintain that there is nothing new about the KBE: our ancestors had to be pretty smart to furnish a warm cave, fashion weapons, and kill wild animals for food. As for the high-performance workplace and its associated human resource strategies... in what way is that new? The Fordist assembly line was a high-performance workplace. So skeptics are wont to suggest that new management strategies emphasizing human resource development are just another fad — the "pop management flavor of the month." After all, isn't this just common sense, good old-fashioned personnel policy: treat your people right and they'll put their shoulders to the wheel? "Our product is steel; our strength is people," right? Right, but the point is that the economy generally, and workplaces in particular, have changed dramatically and in a way that makes the concept of human capital qualitatively different and quantitatively more important than at any other stage in economic history. The whole nature of the production function, at both the macro and the micro levels, has undergone radical and irreversible change.

Even a couple of decades ago, it was not too much a distortion of reality to talk of output being produced by factors of production known as land, labour and capital — with a little help from management/entrepreneurship/organization, and some raw materials. And of course it was understood that a powerful force known as "technical change" could enhance the productivity of the other factors. Extensions and refinements of this basic model for analysis of the production and growth of output might include splitting labour into skilled and unskilled, or looking at the contribution of R&D or human capital accumulation, etc. Later attempts to inject more reality include the notion of "endogenous" technological change: it doesn't just come down like manna from heaven, but is a living, dynamic process that responds to, and in turn affects, market signals, prices, institutions, and actors.

But while the theorists were busy, reality has marched ahead again. The essential nature of the economy has changed almost beyond recognition. With the massive shift in the economic centre of gravity from goods to services, plus the process of globalization and headlong technological advance, our whole way of doing business has shifted fundamentally. It is not for nothing that discussions of economic performance increasingly revolve around the "technological and knowledge intensity" of different industries and around the notion of ideas and knowledge as the new "stock in trade," the source of the innovations that are the essence of competitiveness. For what has happened is that the very nature of the production function — its structure, components, and their weights — has altered.

Look at those old "factors of production." First, the concept of land has changed: telecommunications have rendered location increasingly meaningless; more and more offices are virtual. Second, labour, too has changed. Well within memory the "typical" worker went to a factory every day and enjoyed a long career in a particular occupation and industry. Now, the very notion of a job is being questioned. Third, capital used to be thought of as machinery and equipment and money in the bank. Now we must distinguish among physical, financial, human, structural, organizational, and social capital — to name just a few types. Intangible assets are, for many companies, worth several times the value of their tangible assets and are widely believed to be the principal source of their competitive edge. On this argument, land and capital are no longer so important and the new technologies are available to everyone: so it's intellectual capital that makes the difference. Next, raw materials carry diminishing weight: think of the amount of sand that goes into a microchip versus the amount of brainpower. Some observers are even talking about the "dematerialization" of the world economy. Finally, the management function in the production process is also changing profoundly. The hierarchical relationships of yesteryear are going the way of the dodo. Gone is the close supervision of finely divided, mind-numbing tasks. Today's managers must, more than ever before, have a global mindset. In addition to traditional skills and competencies such as finance, marketing, and technological know-how, they must understand and apply the leading-edge techniques that define success — concepts such as TQM, employee involvement, the "new" human resource management —

in short, what has come to be known as the *high-performance work system*.

So that's what's new: what we produce, where, how, and with what. In this new production function, the human element figures more prominently but in a different way. ("More brains, less brawn," as they say). Clearly, in this knowledge-based economy ideas, creativity, flair, knack, know-how, judgment, and experience — tacit knowledge — as well as the latest technical, codified knowledge, are critical. And this explains precisely the current emphasis on intellectual capital. We must understand its nature, how to value it, how to acquire and nurture it. The traditional lipservice to "people are our most important asset" is no longer enough. That's what's new.

Organization of the Paper

First, a brief section attempts to sketch the *context* within which new approaches are assuming particular importance. There follows a simple description of the three interrelated *strategies*.

The next section examines empirical *evidence* in the three areas, asking: What is their uptake? What forms do they take? How do different types of firms, industries and countries compare? What are the outcomes? The data refer to all three management strategies and are drawn for the most part, from post-1990 surveys, including some international material. The evidence is presented in three ways: one-page "at-a-glance" summaries provide the main characteristics and conclusions of industrial surveys; figures portray particular findings; and the main points are described in the text.

Next is a section that addresses some major theoretical and methodological issues concerning high-performance work systems. A section is then devoted to the *role of the government*. What is the rationale for government involvement in these areas? What forms of involvement currently exist? And what are the prospects for, and broad directions of, change?

The last main section of the paper sets out *research priorities*, asserting, *inter alia*, that there is a dearth of empirical evidence on

the use of the three management strategies and their impact that impedes not only the identification of best practices (and, therefore, benchmarking) but also design and implementation of efficient policies and programs.

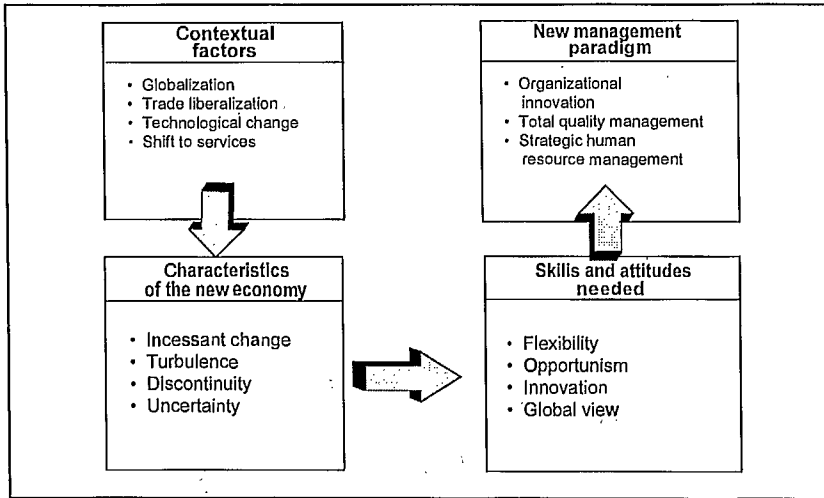
2. THE CONTEXT

This section reviews briefly the context within which the new management paradigm is unfolding. It suggests that powerful forces are transforming fundamentally the very nature of the economy and rendering obsolete, *pari passu*, the models we use to describe it. It argues that human resources, as the source of ideas, invention, and innovation, are the lifeblood of a new, knowledge-based economy. Finally, given the ascendancy of knowledge and ideas in the new management paradigm, it raises some cautionary notes about Canadian preparedness for the challenges of the new economy.

The backdrop for the rapidly growing importance of the human factor has a number of salient features that are well known but are perhaps worthy of brief repetition. The first such feature is globalization. Markets and their associated economic activities respect no boundaries. Thus previously unknown competitors invade our markets and shatter traditional arrangements about prices and market share. They invest a lot in R&D, use advanced technologies, develop new products rapidly, and compete ferociously on price and quality. As one recent article (Hoogendoorn and Brewster, 1992) puts it, "Customers, competitors and technologies are no longer what they used to be." Incessant change, discontinuity, uncertainty, and turbulence are the essence of this global economy. Flexibility, opportunism, and innovation are the skills it demands.

The ferocity of global competition is fed by other developments. Trade liberalization increasingly exposes formerly protected activities to the cold winds of competition, while accelerating technological advance spawns new products and processes that quickly render obsolete yesterday's bright new fads. And most importantly, in this new environment, natural resource endowments no longer confer the competitive advantage they once did. Raw materials are a shrinking proportion of output and value added derives increasingly from brains, not brawn. Brains, in fact — or, rather, the knowledge, ideas, and innovations they produce — are becoming the most important factor of production and source of competitive edge. Capital is highly mobile: financial markets around the world are linked 24 hours a day by the "flickering screens that never sleep." And new technologies are almost instantaneously available worldwide. A country's

Figure 2
Evolution of the New Management Paradigm
A Response to Changing Conditions and Requirements



economic success therefore depends increasingly on the skill and creativity of its people.

It is for this reason that observers refer to the "knowledge economy," and that so much emphasis is being placed on management strategies that enhance skills and reward innovation. Given the rigours of highly discriminating global markets, therefore, it is not so surprising that total quality management has emerged as a concerted and systematic means to improve performance. Nor, given the rapid pace of powerful new technologies, is it surprising that organizational innovations are being pursued to create the setting within which the potential of those technologies can be realized. And a third response is that innovative human resource management practices are being aggressively pursued to encourage and reward the skills and ideas that fuel further innovation. Thus, as shown in Figure 2, the new management paradigm may be viewed as a logical response to the exigencies of powerful forces of transformation. As noted above, these real-world developments are posing challenges to received economic theory.

For present purposes, one of the more interesting aspects of the "new growth theory" lies in Lipsey's (1993) suggestion that

technological change should be broadly defined to include not just new products and processes but also innovations in the development of human capital, organizational capital, and institutional capital. While there is a distinguished literature on human capital theory, economists — with a few notable exceptions, such as Oliver Williamson (1990) — have paid scant attention to organizational capital. This important source of economic growth has been left largely to industrial sociologists and psychologists. Similarly, human resource management, as the means to the development of human capital, has had short shrift from economists, being left in the hands of personnel administrators. While there *are* some echoes of OI and HRM in the economics literature — see, for example, Newton (1986) and Tomer (1987) — they are relatively rare.

To a lesser extent in theory, then, and to a greater extent in business practice, the human factor is assuming especial importance. From a policy standpoint — the main emphasis of this paper — a number of questions must be raised about the speed and effectiveness with which the human resource challenge is met. Are we doing enough? Are we getting it right? How do we do more, and better? But the urgency of these questions is heightened by a number of other considerations.

First is demographic change: the work force is aging. The proportion of young people entering the labour force — the new blood with the latest training and the fresh ideas — is dwindling. So innovative ways of developing the potential of *existing* human resources will be at a premium, particularly because projections indicate rising skill needs to the end of the century (COPS, 1992).

Second, there are profound doubts whether the Canadian education and training system is up to the task. Worrisome high-school dropout rates, illiteracy and innumeracy, and mediocre performance by Canadian students in mathematics and science tests are documented in the Economic Council of Canada's (1992) *A Lot to Learn*. Evidence suggests that not all Canadian students are equally well served by their education systems: interprovincial differences are marked. And there is a strong suggestion, based on longitudinal data from the Canadian Test of Basic Skills, that standards have deteriorated since 1967.

The Economic Council study indicates that vocational education is held in very low esteem: of the 70 percent of Canadian high-schoolers who do not go on to postsecondary studies; only one-tenth take vocational programs. And the apprenticeship program is an anachronism better suited to the postwar industrial economy than to the needs of the burgeoning service sector and the knowledge economy. In 1988, over 90 percent of registered apprentices were in construction and the dwindling manufacturing sector, and just one third of 1 percent in high-tech services.

The Smith Commission report (1992) awarded Canada's university system a passing grade but warned of crumbling infrastructure and eroding services — a problem compounded by dire fiscal straits at all levels of government. Next, the evidence on employer-based training is mixed, but one can reasonably agree with Betcherman's (1992) cautious conclusion that "the international comparisons, with all of their problems, support the position that Canadian industry does not invest in training as much as is the case elsewhere."

Finally, on the issue of Canadian management skills a recent Canadian study shows that there is considerable cause for concern (Newton, 1995). A small sampling of recent evidence is enough to make the point. The World Competitiveness Report for 1994 ranked Canada 19th among 41 countries on managerial performance (including such factors as entrepreneurship, long-term orientation, business efficiency and productivity, corporate financial performance, etc.). Census data for 1986 show that 45 percent of Canadian managers have a high-school diploma or less. A 1991 review of the activities of Industry Canada's Advanced Manufacturing Technology Application Program (AMTAP) revealed that, although the program was originally focused primarily on technology, management and human resource problems were identified in over 95 percent of the cases.

And the problems are particularly severe for small and medium-sized enterprises (SMEs). Baldwin's (1994) profile of growing Canadian SMEs indicates that management development is the most important growth factor and that management is viewed as the most important internal source of innovation (ahead of, in descending order of importance, skilled labour, marketing capability,

market access, access to and cost of capital, technology and R&D, and government support).

Yet in a recent survey of 187 professionals involved in small business management training (Canadian Labour Market and Productivity Centre, 1990) some 62 percent judged Canadian small business management capabilities "poor" or "very poor." A majority of respondents rated small business management capabilities as "low" in the areas of marketing, finance and budgeting, human resource planning and personnel management, management of technology, and strategic planning and leadership. More than half identified either human resources/personnel management or strategic planning as the greatest unmet training need of Canadian small business managers.

This, then, is the context within which Canadian business, both private and public, must seek to survive and prosper: a world of unprecedented opportunities, yet a world also characterized by rapid, discontinuous, and often wrenching change, and beset by uncertainties as to our state of readiness.

3. HUMAN RESOURCE STRATEGIES

These three management strategies have been chosen because, taken together, they appear to represent a response to the kinds of challenges sketched in the last section. Each has its own conceptual identity, literature, and practice. But it should be emphasized that in their real-world application, there are no real boundaries: the strategies overlap and interrelate, and frequently shade off into a myriad of hybrids and variants, each of which has its own titles and terminology. Partly, this is a question of evolution. Many observers would argue that, in essence, there's nothing new about OI, TQM, and the "new" HRM. Isn't it all just old-style common-sense, good management? As a recent *Fortune* article (Stewart, 1993) put it:

The management revolution has many fathers, some more venerable than the computer; self-managed teams and total quality management have intellectual roots reaching back half a century. Why, then, does it seem as if the mores and structures of management are undergoing *discontinuous* change? Is this really new? Or are we deluding ourselves, the way each generation of teenagers thinks it discovered sex?

So, to use one example, one might argue that organizational innovation is just the most recent label for a long line of concepts that include industrial democracy, quality of working life, quality circles, participative decision making, and so on. There is much truth to this. And yet there is also evidence of a fundamental change of approach. To quote the *Fortune* article again:

The evidence suggests a basic shift in the organization of work. Look first at the ubiquity of change. No longer is the management revolution confined to the same dozen trendsetting companies, the GEs, Motorolas, and Xeroxes. Says Stephen Gage, president of the Cleveland Advanced Manufacturing Program, a federally subsidized organization that helps small business apply new technology: 'I doubt if there's a company around here that isn't experimenting with something having to do with dismantling Taylorism'.

Equally striking, leading companies now envision an endlessly changing organizational design.... The key term is 'reconfigurable'. We want an organization that's reconfigurable on an annual, monthly, weekly, daily, even hourly basis. Immutable systems are dinosaurs.

Thus OI, TQM and HRM should be regarded as contemporary expressions of the response to the challenges of change. They will inevitably give way to new and/or more powerful strategies. For the immediate future, however, they hold the promise of contributing to productivity and competitiveness and, as contended above, they are based upon implicit principles — such as the overriding importance of ideas, innovation, and a global perspective — that should wear well in the longer run, too. In the following three subsections we consider them in turn.

Organizational Innovation (OI)

What we have here elected to refer to as OI comes in numerous forms and under various labels: quality of working life; employee involvement (or, more recently, "empowerment"), gain-sharing, job enlargement, enrichment, or redesign; industrial democracy; quality circles; or the ultimate wedding of technology and people in so-called sociotechnical systems (STS). If there is a common element in all of these approaches, perhaps it is the crude notion that "you can't put 21st century technology in 19th century workplaces." The hierarchical model of rigid rules and authority that served very well the technological needs of the assembly line and mass production is inappropriate to the needs and expectations of the knowledge economy. The "scientific management" principles of F. W. Taylor (vulgarly characterized as "check your brains at the door") were successfully applied in factories worldwide where workers routinely fulfilled repetitive, finely specified, mind-numbing tasks in the shadow, and at the mercy, of a complex and soulless technology. Charlie Chaplin in the film *Modern Times* portrayed this system with characteristic pathos. Since the ultimate expression of task simplification was Henry Ford's mass-production assembly line, the technologically determined workplace organization of the industrial age is variously referred to as "Taylorism" or "Fordism."

Thus many of the recent initiatives in the OI field are a more or less explicit reaction to Taylorism and Fordism. Moreover, they are a recognition that the nurturing of flair, creativity, ideas, innovation, and knowledge creation (in pursuit of the holy grail of "value added") calls for radically different organizational settings and management style. Perhaps the easiest way to enter a description of OI is with a brief

description of a well-known example singled out in a Brookings Institution volume by Murnane (1988, p. 218), whose succinct description is instructive:

The importance of workplace organization is highlighted by the recent General Motors-Toyota NUMMI automobile project. In this joint venture, the Toyota management system was introduced to a GM plant in Fremont, California, that had been closed, partly because of low productivity. Eighty per cent of the labour force used in the joint venture consisted of workers previously laid off by GM. The Toyota management system involved serious changes in the way workers were utilized, including use of worker teams responsible for quality control, a just-in-time inventory system, and team standardization of tasks. Within two years, productivity in the plant rose close to levels achieved by Toyota plants in Japan. In other words, the introduction of the Toyota management system resulted in a dramatic increase in labour productivity, using essentially the same work force that GM had labelled as seriously deficient.

The GM-Toyota experience demonstrates that the productivity of the work force depends critically on *how* workers are used, not only on the skills that workers bring to the job. While this notion plays a role in many theoretical treatments of labour productivity, it is missing from most empirical investigations of the relationship between education and productivity.... It is important, therefore, that policymakers concerned with raising productivity pay as much attention to promoting the more effective use of existing labour force skills as they do to raising the skills that workers bring to their jobs.

Turning now to the ways in which OI concepts are typically put into practice, two broad strategies may be distinguished: sociotechnical design and industrial democracy. The first concerns the manner in which work is organized and, in particular, the design of jobs. The central tenet of the sociotechnical systems (STS) approach is that of joint optimization, in which the social and technological subsystems must mutually accommodate their demands if the organization is to function optimally. (This is rather different from the economist's traditional view of a firm's optimization, but seems intuitively plausible enough.) In the STS literature, the "mutual accommodation" of the technical and social subsystems is a symbiotic and synergistic process. In any case, the fundamental corollary is that firms can exercise choice in organizational design.

Thus the notion of technological determinism, in which labour is subservient to the pace and regimen of complementary factors, is abandoned.

In many recent experiments, therefore, the process of increasing specialization of tasks in the Chaplinesque industrialized corporation has been reversed. Numerous case studies document efforts to redesign work roles by means of job "enlargement" and job "enrichment" to afford greater opportunities for the exercise of a variety of skills, control over the work flow, identification with the product of one's labour, and the assumption of responsibility.

It should be emphasized that tradition dies hard and that time-honoured views of the capital/labour relationship in the production process change slowly and painfully. While at first glance a commonality of interest in work humanization may be apparent for workers, employers, and governments alike, initiatives for work redesign may be viewed in practice with considerable suspicion. Nevertheless, a number of applications have been made in Canada, including the world-famous Shell Canada chemical plant in Sarnia, where STS had spectacular performance impacts.

The other major strategy of work humanization concerns not so much the technological aspects of work organization as the process of decision making in the workplace. Sometimes known as "worker participation in management decision making" or "industrial democracy," employee involvement (EI) is concerned with the opportunities afforded to labour to share in the decisions that are taken concerning the process of production — decisions that ultimately have far-reaching implications for the lives of capitalists, rentiers, managers, and workers alike. Considerable attention has been paid to the complex variety of forms in which the labour input into the decision-making process is manifested in practice — from the conventional adversarial approach to collective bargaining that is practised in North America to the system of worker-owned enterprises that can be found in some European countries.

Basically, however, the underlying motivation for the introduction of some form of employee involvement is that the "front-line troops" have practical knowledge, on-the-job experience, and practical expertise that may be an invaluable input in certain decisions. Secondly, workers may be more inclined to accept decisions in

which they have had a hand, and even to work harder as a result of their participation. The information they gain in the course of joint consultation and decision making may enable them to perform more efficiently in their own particular areas. Participation may also foster mutual understanding and cooperativeness, which may reduce the output lost as a result of industrial disputes.

In particular, these days, EI is an integral part of the team concept that is at the heart of STS and TQM — a team concept that strives for ideas and innovation and, through HRM, rewards them. In practice, therefore, the concepts discussed in this paper are virtually indistinguishable. Whatever the varying emphases with which the strategies are applied, one common feature of the new management paradigm is the quest for flexibility and adaptability in the face of rapid, unceasing, and often discontinuous change.

In this context, Hedberg's (1984) application of STS principles to the design of a future steelworks is instructive. Laying stress upon the proposition that dynamism and change are immutable, Hedberg uses the delightful metaphor of "tent" and "palace" organization cultures. Organizational palaces are elaborate edifices that yield only slowly to change. New needs and challenges are typically met through the construction of new wings; the palace takes on a fortress-like character and is ultimately changed only by revolution. In organizational tents the occupants expect to be continually on the move. They watch out for hostile elements in their environment and carry little baggage. In the tent culture of Hedberg's vision of STS, the organization and its individual members react constantly to environmental factors and technological change by process of *continuous learning*. This process is fostered by co-determination, task rotation, and the systematic planning for change that involves anticipatory learning. Stewart (1993) also puts it nicely: "For Dustin Hoffman as *The Graduate* in 1967, the future was plastics. Today you might say it's *plasticity*: the ability to adjust and learn."

Total Quality Management (TQM)

TQM has enjoyed considerable popularity in recent years as a management strategy to improve the effectiveness, flexibility, and competitiveness of a business as a whole. TQM is built upon

principles originally set out by the world-famous (and recently deceased) W. Edwards Deming,² the man to whom Japanese quality ascendancy is widely attributed. Developed by Joseph Juran,³ the TQM approach has a number of distinctive features. First, it is "total" in the sense that it applies throughout an organization: in finance, sales, marketing, design, accounts, research, development, purchasing, personnel, informatics, production, distribution, and so on. Next, it embraces a series of essential principles that include:

- a focus on customers and their needs
- a commitment to meet or exceed those needs
- continuous critical review of all processes to enhance effectiveness
- the development and use of objective and measurable criteria of performance
- the development of a team approach to problem solving, based on communication and reward.

The three components of TQM that make it possible to implement those principles are: a documented quality management system, statistical process control (SPC), and teamwork. Consider them in turn:

First, to activate TQM there is a need for a clearly articulated *system* to ensure that for every product, or for every time a service is performed, a perfectly consistent set of inputs is used in exactly the same way (Figure 3).⁴ Once the system is in place, continuous monitoring is essential. "Systems audits" are required to ensure that the people involved are operating according to the documented system, and "systems reviews" are needed to ensure that the system still meets objectives.

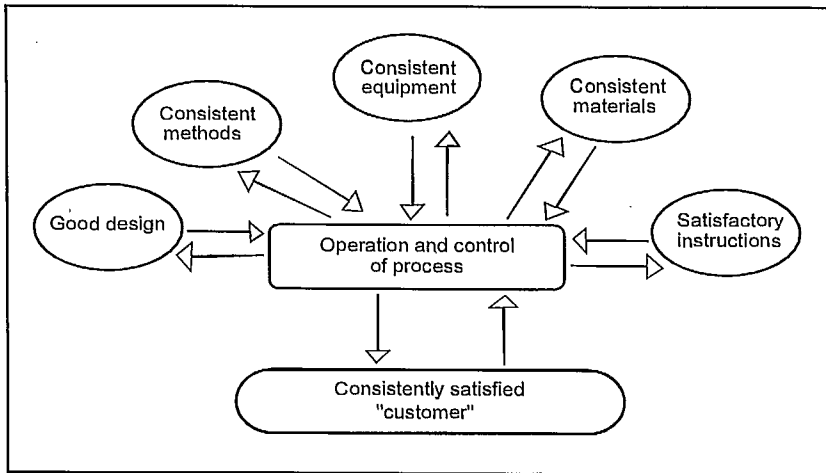
Next, *statistical process control* involves measurement of the performance of the process and the feedback necessary for corrective action. It is the objective means used to identify and reduce variability — the major cause of quality problems. This could

² See Gabor (1990).

³ See, for example, Juran (1992).

⁴ ISO 9000 is an example of such a "system."

Figure 3
The Systemic Approach to Total Quality Management



Source: Oakland (1989).

mean variations in tolerances, material quality, maintenance practices, or even people's attitudes and behaviour. Simple presentation of data using graphs and charts is the principal means of communication, coupled with a culture or "instinct" for diagnosis and treatment.

The complexity and interdependence of functions and processes in the provision of products and services are typically beyond the scope of any one individual. A *team approach* makes it possible to tackle a wider array of problems, assembles a greater variety of skill and knowledge, transcends departmental and/or functional boundaries, improves communication and satisfaction, and carries more weight in decision making.

As far as the implementation of TQM is concerned, Oakland (1989) offers the idea of a series of steps, starting from an understanding of the concept of quality and proceeding through policy formulation, planning, design, and training to the final process of implementation. Of course, in practice, some steps may already have been taken.⁵ Nevertheless, systematic and continuous review

⁵ For example, prior commitment to the requirements of ISO 9000 may simplify establishment of a documented quality *system*.

of status and performance at all steps is required to ensure the unceasing improvement in meeting customer requirements that is the very essence of TQM.

Human Resource Management (HRM)

Sometimes called the "new" human resource management — after all, HRM of one kind or another has been around as long as people have — this concept was developed anew in the United States in the 1980s. Since that time, HRM has become prominent in the academic literature and in management practice in North America, the United Kingdom, and Australasia, as well as, more recently — and in somewhat different form — in continental Europe (Brewster and Bourniois, 1991). Recently, it has often been referred to as "strategic human resource management" (SHRM) to emphasize the fact that HRM is increasingly integrated into the corporate planning process and is explicitly designed to be congruent with overall corporate strategy.

In the evolution of the new HRM the seminal works are two American texts — by Fombrun et al. (1984) and Beer et al. (1985), respectively. In the somewhat "harder" approach of the former, people are more likely to be regarded as inputs to the production process just like any others — obtained as cheaply as possible and exploited as effectively as possible. HR strategy is subservient to overall corporate strategy and is designed to make it work.

While the hard variant emphasizes the "resource" side of human resource management, the "soft" variant emphasizes the "human" side. People are *not* a resource like any other but the one whose creativity, commitment, and skill can generate real competitive advantage. This approach stresses the need for "feeding and care" of people and for integrating them into the organization. People are "employees," part of a team that gives identity to the organization — in contrast to the greater tendency to rely on short-term employment, outsourcing, and subcontracting in the harder variant.

While there are differences in emphasis, there are common elements between the two variants that distinguish HRM from the old "personnel" function within organizations. First, there is a greater

tendency to forge more explicit links between human resource management and overall corporate strategy. Second, there is a greater tendency to emphasize the importance of communication, particularly in order to foster greater participation in decision making. Third, there is more emphasis on flexible work organizations and especially on the encouragement of teams. Fourth, there is much greater reliance on contingent compensation practices and on skills- or knowledge-based pay structures. Finally, there is growing emphasis on the need for continuous skill development and an explicit recognition of the value of an organization's human assets. These developments have come to be enshrined in the concepts of "the learning organization" and "intellectual capital."

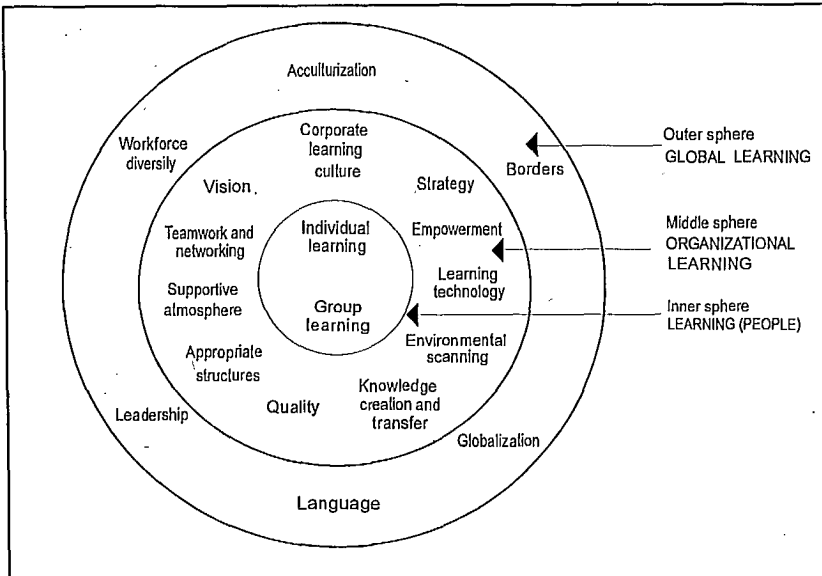
The Learning Organization

Popularized by Peter Senge's (1990) book *The Fifth Discipline*, the learning organization is one which, according to Marquardt (1995),

- is customer-driven and strives for continuous improvement;
- views the organization not as a machine but as a growing organism;
- has compelling and widely shared mission, vision, and values;
- embraces change as an opportunity to learn;
- creates new knowledge not only with objective information but with subjective insights, symbols, and hunches;
- encourages and rewards teams;
- encourages managers to be coaches, mentors, and learning facilitators; and
- links self-development to the development of the organization as a whole.

Marquardt and Reynolds (1994) posit a model of a global learning organization consisting of three concentric circles or spheres, as shown in Figure 4. In the inner sphere are individual and team learning, the latter because individual learning is enhanced through shared reflection and analysis. In the middle sphere are the components of organizational learning, such as the corporate culture that encourages and rewards continuous learning; the empowerment of employees to take decision-making responsibilities, solve their

Figure 4
Global Learning Organization Model



own problems and identify their own ways to expand their learning capacity; the very best learning technologies, and so on. Finally, the outer sphere emphasizes that in the global organization learning means the development of a mindset that transcends borders and that can adapt to cultural diversity and other languages.

Intellectual Capital

The various kinds of HR policies and practices described above can be said to promote the development of intellectual capital (IC), a term that is enjoying considerable attention in the management literature these days. So it may be useful to briefly enquire: What is it? How does one measure it? And what are the policy implications?

In a new book Brooking (1996) defines intellectual capital, or "intangible assets," to include people and their expertise, business processes, intellectual property, and markets. Box 1 offers a schematic representation of these interrelationships.

Box 1
Intellectual Capital

Human Assets +	IP Assets +	Infrastructure Assets +	Market Assets
<ul style="list-style-type: none"> • Skills and competencies 	<ul style="list-style-type: none"> • Copyrights 	<ul style="list-style-type: none"> • Methodology, techniques, systems, policies, procedures, and practices 	<ul style="list-style-type: none"> • Goodwill
<ul style="list-style-type: none"> • Knowledge: codified, tacit 	<ul style="list-style-type: none"> • Patents • Design rights 	<ul style="list-style-type: none"> • Organizational structure • Communications structure 	<ul style="list-style-type: none"> • Reputation • Corporate citizenship
<ul style="list-style-type: none"> • Psychological characteristics 	<ul style="list-style-type: none"> *trade marks 	<ul style="list-style-type: none"> • Corporate culture, management style 	
<ul style="list-style-type: none"> • Leadership • Entrepreneurialism 			

So, how do we measure intellectual capital? The answer is probably, "not well, but there's progress." As a crude beginning, Tobin's q can be quite helpful. The ratio of the market value of the firm to the replacement cost of capital, it captures the idea of intangible assets and provides clues that point to the firms where such assets are important. (For example, high-tech firms may have ratios of 10:1 or more, while ratios in the steel industry might be closer to unity.) But consider, first, that there are several different aspects to the measurement question. Who is doing intellectual capital accounting, where, and in what numbers? What is the impact of the systematic incorporation of IC accounting on firms' performance? And, simply, how do you figure out how much of these assets you've got, whether it's enough, and whether or not they are appreciating?

On the first question there is a dearth of information. There seem to be surprisingly few large-scale survey attempts to assess the penetration of a management practice that, by all accounts, is the wave of the future. Most of the interesting information at the moment appears to be of the case-study variety — from Skandia, the CIBC, the Royal Bank, etc.

With respect to the second question, a growing body of highly relevant research on the high-performance workplace strongly suggests that a nexus of management practices that systematically

develop intellectual capital has salutary effects on performance. Thus the teamwork that characterizes TQM, the continuous learning of new forms of organizational innovation, and the innovative reward systems of the "new" human resource management appear to have positive effects on the bottom line. And all, clearly, are related to the management of intellectual capital.

The third question comes to the heart of the matter: How do firms take stock of their intellectual capital? A number of things can be done, with varying degrees of sophistication. A crude starting point is to look at the educational attainment of the work force: What proportion are college graduates and university graduates? How many have postgraduate degrees? In what disciplines? What specialized certificates, diplomas, and courses are on people's résumés? Depending, of course, on the nature of the business, such characteristics can be scored on a factor scale. So, too, can experience and skill levels. The literature of industrial psychology, including that dealing with job evaluation and personnel assessment, is relevant here. Such measures can, in turn, be supplemented by psychometrics to capture personal attributes. Finally, measures are needed to show how the stock of intellectual capital is growing over time. These might include objective measures of performance — papers published, clients served, sales, number of ideas, etc. — since, up to a point, such achievements add to an individual's reputation and "capital stock." Development over time also requires an accounting of additional courses taken and/or skills acquired.

What are the policy considerations? From the standpoint of microeconomic policies aimed at enhancing productivity, competitiveness, and growth, there are persuasive arguments to suggest that firm-level strategies and practices to nurture IC assets are a sound investment. Developing the means to systematically and continually account for those assets and their growth is thus a critical step. For policymakers, therefore, there are some urgent research needs. What is the empirical evidence of Canadian firms' attaching importance to IC and of their developing the means to measure, monitor, and develop it? Are there general principles (as opposed to specific practices) that could be widely instructive? What are the barriers to the implementation and diffusion of exemplary practices in IC development? Are there (as is often the case) special problems for small firms? What is a useful role for governments in stimulating

the requisite research and diffusing information about best practices?

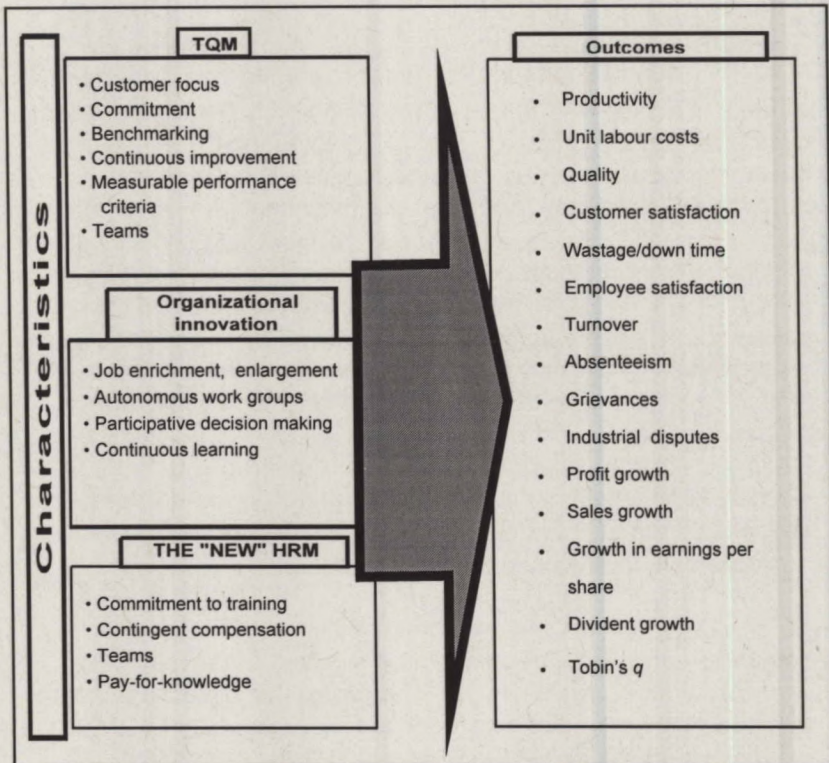
In conclusion, there is one particular conundrum for policy-makers, both public and private, that is related to the perennial HRD issue of externalities. Consider a model in which the firm strives to maximize the value of its IC assets. It must acquire the best, at the best price, invoking a "make or buy" calculus. It must balance the benefits and costs of establishing a stable, supportive, rewarding climate for innovation against those of the challenge and stimulus of a high-turnover organization with a constant whirlwind of fresh ideas. So while the acquisition, retention, and development of IC assets is critical, there is some optimal rate of turnover of the people in whom those assets reside. And since one's people are the embodiment of technological know-how that could migrate to competitors, the externalities aspect of the decision as to when to train, and how much, acquires especial poignancy. From governments' point of view, by contrast, labour market mobility of highly skilled people may be looked upon as a valuable way of transferring technology — with consequent implications for the social good.

In closing this section, we note that the various strategies described constitute a blurred, amorphous set. Clearly, they are interrelated and complementary. The continuous assessment of potential for improvement that is one of the hallmarks of TQM, for example, depends on the flexible organizational setting that encourages teamwork and participative decision making; and on the development of and rewards for ideas and skills inherent in HRM.

Taken together, OI, TQM and HRM are bringing far-reaching changes to the workplace. Indeed, in recent years there has evolved an extensive body of interdisciplinary literature focusing on the high-performance workplace or "high-performance work systems." A simple model of the HPW is shown in Figure 5.

The basic notion is that the kinds of global competitive challenges and constraints set out in section 2 have given rise to a systemic response aimed at maximizing firm-level performance through knowledge and skill-based innovation strategies. Recent theoretical research and empirical evidence suggest these human

Figure 5
The High-Performance Workplace



resource management strategies and their constituent practices have positive impacts on a variety of performance indicators.

What is beginning to emerge, therefore, is a workplace that, in a number of important ways, is significantly different from the traditional, industrial age model. These differences are set out in Box 2.

Box 2
The New Workplace

How does the New Workplace Differ from a Traditional Workplace?	
New Workplace	Traditional Workplace
<p>Flexible Production Processes</p> <p>Leading-edge technology is implemented as a complement to the skills and knowledge of workers. New technology and production methods provide the ability to introduce new products quickly and to produce a greater variety of products in smaller volumes. Tightly integrated systems provide "real time" information to the shopfloor.</p>	<p>Inflexible Deskillng Technology</p> <p>The technical system dominates the work. Inflexible systems produce standard products in high volumes and severely limit the introduction of new products. Workers are viewed as the extension of machines, completing repetitive tasks following standard procedures.</p>
<p>New Worker Skills</p> <p>Work requires creative thinking, self-motivation, and academic basics. Problem-solving, decision-making, business, financial, negotiating, and interpersonal skills, in addition to technical skills, are essential for workers.</p>	<p>Technical Skills Only</p> <p>Labour-intensive work requires the technical skills to get the job done; no knowledge of product or process outside the immediate task is necessary.</p>
<p>Worker/Management Cooperation</p> <p>Relationships are based on mutual interests and a cooperative approach to problem solving. Brief "compacts" outline the collaborative relationship between workers and management.</p>	<p>Adversarial Worker/Management Relations</p> <p>A power/rights-based system. Distrust between workers and management often prevents flexibility in responding to change. Relationship defined by extensive rules.</p>
<p>Innovative Compensation Plans</p> <p>Pay increases based on skill attainment and/or performance. Systems reward worker contributions, such as teamwork and quality.</p>	<p>Seniority-Based Compensation</p> <p>Pay is determined by rigid job-classification rules that are based on tenure with the company.</p>
<p>External Partnerships</p> <p>Strategic alliances with suppliers and customers provide feedback and collaboration to increase quality and productivity. Networks of industries and corporations encourage information sharing and co-innovation.</p>	<p>Few Alliances</p> <p>Suppliers are viewed as bidders and kept at a distance from product development. Customer feedback is not actively sought. Company information is closely held to maintain competitive advantage.</p>

Box 2 (cont'd)**Employee Empowered**

Workers are empowered with knowledge and skills on all facets of work processes and business goals, and actively participate in organizational decision making.

Work Teams

Work is organized into self-managing units whose job boundaries cut across traditional organizational lines. Supervisors act as coaches and mentors. Workers are responsible for both production processes and organizational duties such as hiring and scheduling.

Employee-Centred Workplace Policies

Workers are viewed as an asset. The corporate culture is supportive, flexible, and sensitive to the needs of workers. Diversity is valued. Companies strive to create safe and healthy workplaces sensitive to worker family demands.

Continuous Innovation/Improvement

Innovation is market driven, and organizations continuously strive to improve the quality and timeliness of new products. Various departments collaborate in new product development, establishing a system of concurrent innovation.

Customer- and Worker-Driven Quality

Quality and customer needs are the major drivers of change, with zero defects as the goal. Quality is continuously measured by workers and results are fed back to all.

Tools for Competitiveness

Measurement tools used by workers, such as statistical process control and benchmarking, are critical to gauging internal performance and external competition.

Management Controlled

Communication is mostly top-down, and work is tightly controlled through management-established procedures.

Functional Departments

Work is organized by functional department, craft, or trade, with job boundaries well defined. Jobs are designed with narrow scope and limited responsibility for the end product. Minimal cooperation between functions or departments.

Cost-Focused Workplace Policies

Impersonal corporate cultures focus on the cost side of employee issues. Conformance and uniformity are the norm; sensitivity to issues outside the realm of the job is minimal.

Sequential Innovation

Products have long life cycles, and innovation tends to occur infrequently. The process is slow and completed in stages as different elements of the development process are handled by a separate department and then "tossed over the wall" to the next.

Inspection for Errors

Nominal defects rates are accepted. Quality is the result of process adjustments and inspection at the final stages of production.

Internally Driven Performance Standards

Managers' track/record performance is based on internal goals.

4. EMPIRICAL EVIDENCE

Incidence

There is a dearth of high-quality, consistent, and comparable evidence on the management strategies under consideration. Not surprisingly, given the complementary and overlapping nature of the strategies, such evidence as is available is not easily or neatly compartmentalized. For example, the two TQM studies described — one Canadian and one international — include employee involvement. And employee involvement is also an integral part of two sets of evidence — one Canadian, one American — that are reviewed on the subject of HRM. Clearly, the strategies are symbiotic. And indeed, a major conclusion of this empirical review is precisely that *individual* approaches, practices, or programs, though intuitively appealing, may have only marginally positive benefit/cost ratios. What appears to be important are two factors: first, the overall organizational climate ("vibes," as they say) within which the programs are initiated and carried through; and second, the extent to which programs are launched not as single, unsupported sorties but as part of a concerted and mutually strengthening advance on clear objectives.

The section consists of two major parts. It begins with a very brief mention of some recent Canadian case study material and the results of a couple of recent surveys that relate to OI and HRM practices. Then the results of two somewhat more comprehensive studies — one Canadian and one international — are presented. The second part concentrates on the "bottom line" impacts on performance.

A useful starting point for an appreciation of workplace innovation in Canada is Mansell's (1987) overview of its evolution and character. Drawing on case studies, Mansell outlines differences and tensions between labour and management approaches to workplace innovation and attempts to characterize it in terms of the comprehensiveness of its application. Her conclusion is that exploiting the potential of powerful new technologies that emphasize quality and flexibility places a premium on a committed, multi-skilled, and self-regulating work force. Variants of the sociotechnical

systems approach hold out the promise of accommodating the technological and human sides of the innovation process.

Other Canadian case studies are to be found in Betcherman, Newton and Godin (1991), where an attempt is made to look at the do's and don'ts of marrying technological and organizational change. Rankin's (1992) study of the celebrated STS strategy at Shell Canada's Sarnia chemical plant is essential reading for those interested in the design, implementation, and impact of workplace innovation.

Finally, two other sets of Canadian case studies on workplace innovation should be mentioned in passing. The first is an extensive listing of close to 200 cases, compiled in association with the ongoing research of the Canadian Labour Market and Productivity Centre (CLMPC) on work reorganization in the context of economic restructuring. The second is a volume of case studies amassed by the former Labour Canada and published under the auspices of the Department of Human Resource Development.

Turning now to survey-based evidence, the work of Betcherman and McMullen (1986) must be regarded as a pioneering attempt to provide an estimate of the private sector's take-up of technological and organizational innovation. The study found that some form of OI — innovations in compensation, workplace design, and joint decision making — was used in about two thirds of establishments in 1980-85, compared to the three-quarters that reported the introduction of "hard" technologies.

A recent rerun of the Betcherman and McMullen survey by McMullen, Leckie and Caron (1993) compares the take-up of employee participation programs in 1985 and 1991. While the proportion of "hard-tech" users had risen from 76 to 98 percent, there was virtually no change in the proportion of establishments reporting employee participation programs (43 vs. 48 percent).

The Human Resource Practices Survey

A useful new source of Canadian data on OI and HRM is the Human Resource Practices Survey (HRPS), recently analyzed by

Box 3

HRM in Canada: The HRM Practices Survey
(Queen's-University of Ottawa Economic Projects, 1993)**Sample**

- 714 establishments in: wood products (25 percent); metal fabrication (27 percent); electrical/electronic (20 percent); business services (28 percent)
- 40 percent unionized
- Size: small (23 percent); medium (36 percent); medium/large (31 percent); large (10 percent)

Main topics

- Human resource planning
- Job design
- Training
- Compensation
- Employee involvement
- Flexible hours/family care
- Non-standard employment
- HRM systems

Major conclusions

- Majority of firms still "traditional"
- Two clusters of HP practices, emphasizing EI and compensation, respectively
- Traditional systems more prevalent among older industries and smaller firms

the HRM group of the Queen's-University of Ottawa Economic Projects. A summary of the survey's characteristics is provided in Box 3.

Some highlights of the results are as follows:

The first important piece of evidence concerns the extent to which firms undertake formal, systematic *human resource (HR) planning* and incorporate it into their overall business strategy. The survey results suggest that despite the popular adage that "people are our most important asset," the HR function does not enjoy a high profile in Canadian firms. In all functional areas except compensation — thus including job design, staffing, training, and union-management relations — only a minority of respondents had a formal plan and formal evaluation. Almost half had no dedicated, full-time human resource unit. (Note that the HRPS underrepresents the very small firms that are less likely to have such a function.) Fewer than 50 percent of respondents indicated that HR planning and/or evaluation were integrated into overall business planning.

Turning next to specific practices, the HRPS reports only a limited diffusion of non-traditional *job designs*. "Traditional" here encompasses narrow and demarcated job definitions, specific and unchanging employee assignments, and workers' responsibility limited to their immediate jobs — a Tayloristic design, in short. Non-traditional job designs featuring broad and flexible job definitions and the deployment of workers over a family of jobs are variously labelled job rotation, enlargement, or enrichment, or self-directed work teams. Typically, just over one-fifth of HRPS establishments reported such practices.

In recent years, *training* has become almost an obsession with labour market analysts and policymakers concerned with firm-level (as well as aggregate) productivity and competitiveness. Estimates of the incidence of training have varied widely, and there has been a lively controversy over whether Canadian employers invest as much in workplace training as their overseas competitors. The HRPS is perhaps too limited a sample from which to derive inferences about incidence, but it does confirm the finding of the CLMPC (1993) that a substantial amount of "non-vocational" training takes place: not only in areas such as health, safety, and orientation, but also in "social and cultural" areas such as leadership, communication, team building, group decision making, and problem solving.

Turning now to *compensation* practices, about one-half of the HRPS respondents had some kind of variable-pay scheme such as employee stock option plans (ESOPs), profit sharing, productivity gain sharing, or pay-for-knowledge. As with many high-performance work practices, variable-pay plans tend to be associated more with larger establishments making greater use of new technologies.

As far as *employee participation* is concerned, the HRPS shows an incidence (43 percent) remarkably close to those reported in Betcherman and McMullen (1986) and McMullen, Leckie and Caron (1993), referred to earlier. Of the issues covered by employee participation programs, quality is the one most frequently cited by respondents, with health and safety coming a close second. Once again, large, technologically advanced firms are more likely to report such programs as, to a marginal extent, are those that are unionized. An interesting question raised in Betcherman, Leckie and Verma (1993) has to do with the sustainability of employee participation

programs. Their data suggest a failure rate of one in three between 1985 and 1991. The reasons are unclear, but since the most frequent issue offered was "downsizing or restructuring," there is some suggestion that such programs are seen as a luxury rather than a necessity.

Increased female participation in the labour force in recent years and the growth of two-worker families has led to pressures for more *family-friendly practices*. However, only about 40 percent of the HRPS respondents offered flexible work schedules. Interestingly, while large, non-union firms tend more often to have such programs, the latter are observed less often than average in Ontario and (particularly) in Quebec.

Restructuring and downsizing in recent years have led many employers to cut labour costs by reducing the size of their core work forces and by resorting to a variety of *non-standard employment* practices such as short-term, part-time, temporary, and contracting-out arrangements. Fully 87 percent of the HRPS establishments reported at least one form of such arrangement.

Finally, the HRPS project addresses the question of HRM *systems* — the notion that firms of different characteristics tend to employ different combinations or "clusters" of practices that constitute their unique systems of HRM. Analysis of the HRPS reveals three clusters: *traditional*, using very few HR practices; *participation-based*, focusing on employee involvement, job design, quality, and intrinsic rewards; and *compensation-based*, relying on extrinsic rewards and incentives such as variable pay, internal promotion, and generous wage and benefit packages. Most establishments (53 percent) fell into the traditional cluster, with 24 and 23 percent in the second and third clusters, respectively.

Differences in firm characteristics within the clusters are interesting. Traditional HRM firms were less likely to report perceptions of major environmental changes, such as degree of competition, regulatory environment, technology, etc. The corollary, presumably, is that those "feeling the heat" had been motivated to institute more innovative approaches. The union/non-union split is not a marked one, but as usual size is positively associated with more innovative practices. Finally, the firms in the "old economy"

goods industries, represented by wood products and fabricated metals, are much more likely to be in the traditional cluster, while business service firms are much more likely to be in the "participation" and (particularly) "compensation" clusters.

The ISC and Ernst & Young/AQF Studies

Two recent studies of quality management practices (QMP) offer a useful picture of their incidence. The first was undertaken for Industry and Science Canada (ISC, 1993) by Statistics Canada. The second — the Ernst & Young/American Quality Foundation (1992) study — compares Canada, Germany, Japan, and the United States. The studies differ widely in approach and coverage but, as a glance at Boxes 3, 4, and 5 will confirm, the range of practices covered is very similar in the two studies, most likely because both drew upon the criteria for the prestigious Baldrige awards in their design criteria.

The ISC (1993) study is a useful guide to the incidence of quality management practices in Canadian manufacturing. The basic characteristics of the study are set out in Boxes 4 and 5. In brief, it looks at close to one thousand manufacturing firms and their usage of some 27 quality management practices (QMP) grouped under four headings: leadership, employee involvement, process improvement, and customer focus (see Box 5 for details of the practices).

Firms are then classified according to their use of certain clusters of practices. When industries are grouped according to their openness to competition, the "high-tariff" group is dominated by lower users of QMP and the "high-tech" group has a disproportionately high incidence of more intensive users of QMP. As in most such studies, size is a factor. Larger firms are significantly more likely to use a high, and balanced, set of QMP. Finally, there is some evidence that greater usage of QMP is positively related to two performance measures — increased value added per employee and increased market share, respectively.

Some key findings of the Ernst & Young/American Quality Foundation (1992) International Quality Study (IQS) are set out in following paragraphs. As Box 6 shows, the study is based on a

Box 4
Striving for Quality:
Survey of Quality Management Practices in Canadian Manufacturing
 (ISC, 1993)

Sample

- 937 manufacturing businesses in Canada selected according to criteria of:
- number of workers
 - industry
 - region

Focus

Use of quality management practices in four major areas:

- leadership
- employee involvement
- process improvement
- customer focus

27 individual practices

Incidence of clusters of quality practices

High balanced (21 percent)	Firms using over 80 percent of QM practices in each of four categories
High L-E (10 percent)	Firms concentrating over 60 percent of their QM practices on "leadership" and "employee involvement"
High P-C (18 percent)	Firms implementing over 60 percent of the QM practices in "Process Improvement" and "Customer FOCUS"
Moderate use (12 percent)	Firms using about half of the QM practices in each of the four categories
Medium P-C (19 percent)	Those making use of about half the QM practices in "process improvement" and "customer focus"
Low use (20 percent)	Firms making very little use of all QM practices

survey of over 500 companies in four industries in four countries in 1991 and is designed to elicit information on a range of quality management practices.

Figure 6 shows the frequency with which businesses evaluate the impact of quality on financial performance. Nearly one-fifth of U.S. companies make such an assessment less often than annually. Canada has the next highest proportion. The Japanese figure is only 2 percent.

Box 5
ISC (1993) Quality Study
 (Percentage of Manufacturers Using QMPS)

Leadership		Process Improvement	
Quality support group	78.6	Tracking cycle times	70.8
Regular meetings on quality	53.3	Tracking product quality	69.3
Mission statement	50.3	Supplier standards	67.1
Quality improvement plan	44.9	Tracking waste and stock turnover	64.5
Quality training for managers	38.9	Problem-solving teams	45.9
Management involvement	28.2	Statistical process control	44.6
Assistance of outside consultant	19.5	Benchmarking	37.2
		Registration to a QA system	21.8
Employee Involvement		Customer Focus	
Training needs assessment	66.2	Customer input into product design	80.8
Quality training for employees	63.1	Customer service standards	71.5
Suggestion systems	53.4	Complaint resolution systems	51.0
Recognition and reward schemes	49.0	Customer satisfaction relative	
Communication of mission and plan	26.6	to competitors	48.0
Tracking employee satisfaction	26.5	Customer satisfaction surveys	34.1

Box 6
International Quality Management Practices
 (Ernst & Young/American Quality Foundation, 1992)

Sample

Responses to a detailed 1991 questionnaire by teams of executives in over 500 companies in 4 industries:

- automotive
- banking
- computers
- hospitals

and in 4 countries:

- Canada
- Germany
- Japan
- United States

The focus

102 areas of management practices related to quality, grouped into five clusters:

- business performance: emphasis on quality
- customer focus
- competitor comparisons
- process improvement
- employee involvement

Figure 6
Percentage of Businesses That Do Not Conduct Assessments
of Quality Performance at Least Once a Year

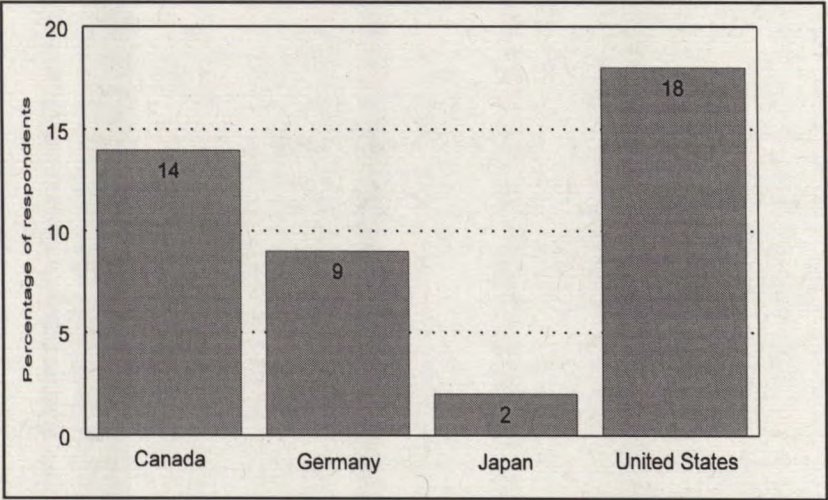


Figure 7
Percentage of Businesses That Translate
Customer Expectations into New Product Design

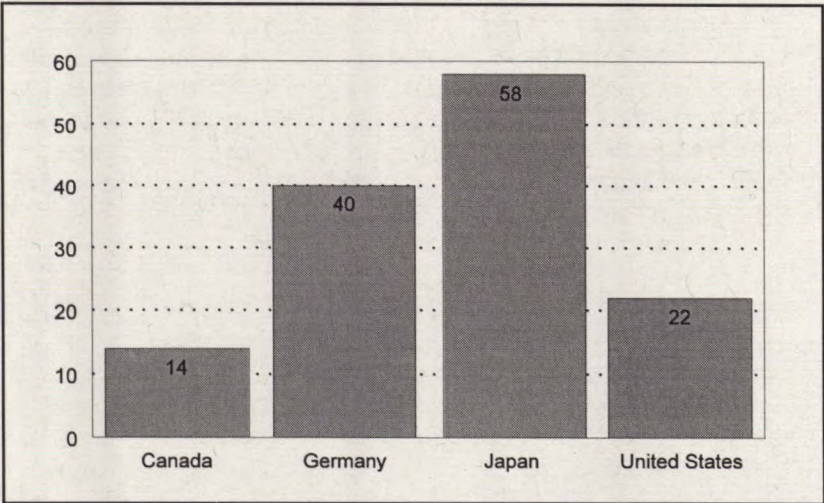
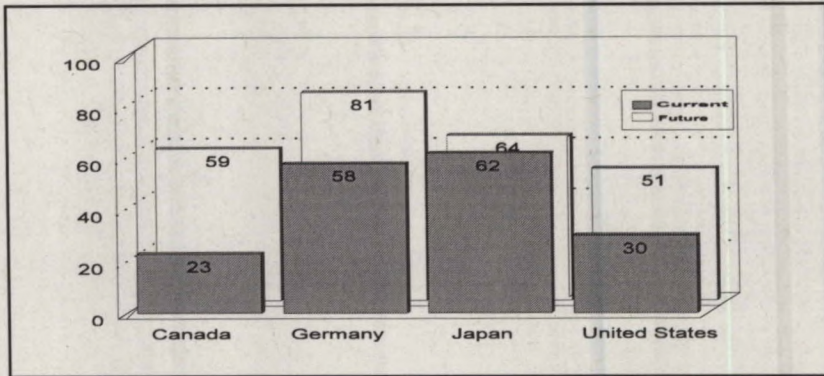


Figure 8
Percentage of Businesses with 25 Percent or Less
of Workers Involved in Quality Teams



Japan also leads the way with respect to the importance attached to customer focus and to incorporating customer needs into design of new products and processes (Figure 7). Canada trails the other countries on this last measure.

The final figure based on the IQS data relates to employee involvement. Figure 8 appears to challenge the popular notion that Japan has all of its work force in teams dedicated to quality. Have integrated, cross-functional work styles become so instinctive to the Japanese that the formal creation of teams is unnecessary? While Canada's application of quality teams lags behind that of the other countries, the figures for future plans suggest Canadian companies' intentions to significantly increase the extent of quality teams over the following three years. Finally, notwithstanding the conventional wisdom about the value of involving employees in meetings about quality, only in Japan are large proportions of the work force involved in such meetings.

Impacts on Firm Performance

The allure of the new management paradigm is that it points the way to improved performance. But since the strategies we have described require substantial investment of resources, it is important to have some indication of potential returns. The literature is by no

means replete with empirical evidence on this issue; indeed, this topic must be considered a research priority of the greatest urgency: informed decisions by policymakers, public and private, depend critically upon such evidence.

Some information on performance impacts is nonetheless available. A recent working paper from the U.S. Department of Labor (1993) examines the effects of three kinds of high-performance work practices: employee involvement in decision making; performance-linked compensation; and training. Positive productivity impacts are found for all three sets of practices. Studies within particular industry sectors are instructive inasmuch as they focus on firms making similar products with similar technologies. In both steel and autos, U.S. firms using more innovative work practices were more productive than their more traditional counterparts.

Canadian evidence is sparse, and many of the studies, such as those on Shell's Sarnia chemical plant by Halpern (1984) and Rankin (1992), are individual case studies. However, a few examples can be cited. The first, on new forms of work organization, was commissioned by the Task Force on the Organization of Work of the Ontario Premier's Council on Economic Renewal. Undertaken by Kaplan and Rankin (1993), it covers an extremely small sample of workplaces already known to have introduced change (and suspected, we think, to have had good results). Nevertheless, it is instructive in suggesting the range of organizational innovations that have been instituted in Canadian workplaces, and the range of performance variables that can be affected. The characteristics of the sample, and the various outcomes are summarized in Box 7.

The most frequent forms of OI cited were "team concept/self-managing team" and "employee participation, involvement or empowerment," but others included TQM, pay-for-skill, sociotechnical systems, and multi-skilling. Sizable positive impacts were reported on productivity, quality, costs, employee satisfaction, and labour/management relations.

Next, the ISC (1993) survey of quality management practices in Canadian manufacturing, referred to earlier, has two sets of findings on performance outcomes. The first relates quality management practices to value added per employee. In the period 1990-91 more

Box 7
"Benefits of New Forms of Work Organization"
(Kaplan and Rankin, 1993)

The sample

18 case studies:

- 13 from manufacturing
- 2 from mining
- 1 each from wholesale/retail trade; construction; public administration; provincial crown corporation
- 14 unionized, 4 not
- 1 under 100 employees, one over 5,000

Most frequent terms to describe change (rank)

- Team concept/self-management
- Employee participation/involvement/empowerment
- Quality/TQM/continuous improvement
- Pay-for-skill
- Sociotechnical systems
- Multi-skilling

Performance improvements

- Quality
- Productivity
- Costs
- Amount of training
- Time lost due to accidents
- Employee attitudes
- Absenteeism
- Labor-management relations

firms experienced a decrease (53 percent) in labour productivity than an increase (47 percent). However, among firms in the "high balanced" and "moderate use" clusters, more experienced an increase in productivity — a finding, which, the study asserts, suggests that a balanced approach contributes to better results.

As for market share, 52 percent of firms reported an increase in 1990-91, but higher-than-average increases were reported for the "high P-C," "moderate use," and "high balanced" clusters, respectively. The study is silent on the apparently anomalous finding that the "high P-C" cluster was ranked lowest on the labour productivity measure but highest for market share.

One other Canadian study of quality management in Canada that touches on performance issues was conducted by Peat Marwick Stevenson and Kellog (1992) on the basis of a survey of subscribers

Box 9
HRM Practices and Organizational Performance:
Evidence from Atlantic Canada
 (Wagar, 1993)

Sample

- | | |
|--|---------|
| • 1,277 organizations | |
| • Size | Percent |
| < 25 | 23 |
| 26-50 | 30 |
| 51-99 | 20 |
| 100+ | 27 |
| • Sector | |
| Mining, construction, manufacturing | 21 |
| Transportation and communications | 4 |
| Wholesale and retail trade | 34 |
| Finance, insurance and real estate | 5 |
| Education | 4 |
| Health | 5 |
| Public administration | 6 |
| Other services | 2 |
| • Unionized, 29 percent; downsized in last 2 years, 33 percent | |
| • HRM/IR department, 25 percent | |
| • Job enlargement/enrichment, > 25 percent | |
| • Autonomous work teams, < 25 percent | |
| • QCS or QWL programs, about 25 percent | |
| • Profit-sharing, 28 percent; group or team incentives | |

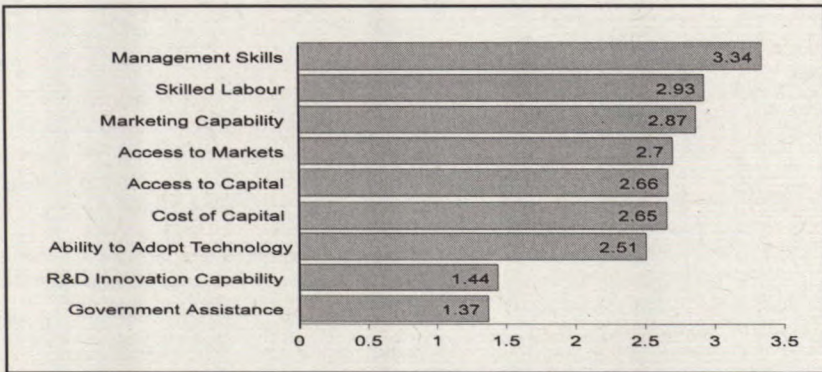
Impacts

- HRM programs (e.g., formal appraisal, pension plan, information sharing) are positively related to employer-employee relations;
- team programs are positively associated with employee satisfaction;
- both of the above performance variables are positively related to economic performance variables (productivity, quality, customer satisfaction);
- but the main factor is a "climate" variable — the presence of a "progressive decision-making" culture.

1,277 private and public sector organizations in Atlantic Canada are described in Box 9.

The study has three main components. The first examines the use of specific human resource/employee involvement programs. The second component examines the relationship between use of the HRM/employee involvement programs and organizational characteristics such as size, unionization and, interestingly, "progressive decision making" (which includes the use of participative decision making at management level and highly developed communications channels). The final component looks at the relationship between HRM practices and the three measures of

Figure 9
Factors Contributing to SME Growth
Mean Scores on Five-Point Scale of Importance



performance: overall employee satisfaction, employer/employee relations, and economic performance (including productivity, quality, client satisfaction and profitability).

In the case of the relationships between measures of organizational performance and the explanatory variables, it turns out that "progressive decision making" is the key factor. For all performance measures, higher scores on this variable were related to more favourable outcomes. HRM programs are associated with better employer/employee relations, and team programs are positively related to overall employee satisfaction. After controlling for progressive decision making, HRM and team programs do not have much direct impact on economic performance. But overall employee satisfaction and better employer/employee relations are themselves associated with higher scores on economic performance.

With respect to organizational characteristics, unionized organizations reported less favourable improvement in employer/employee relations and in economic performance. The larger the organization, the lower were the levels of, and improvements in, overall employee satisfaction and employer/employee relations. Larger organizations tended to have more HRM programs, but Wagar suggests that certain HRM practices may not be required or even desirable in small firms. Moreover, his interviews with small-business managers and owners revealed the need for more research on HRM in SMEs and for the applicability of HRM programs designed for large corporations.

Box 10

Human Capital Development and Innovation

(John Baldwin and Joanne Johnson, Research Paper No. 74,
Statistics Canada, March 1995)

Conclusion

Firms experiment with a variety of strategies as they vie for advantage with their competitors. Not all firms adopt an aggressive training strategy. While there are many factors that influence training, the preceding analysis highlights the finding that training tends to occur as part of a cohesive strategy. Training is one component of a package of strategies pursued by knowledge-based firms. Consequently, human capital that is developed at the firm level strongly complements technological capability. Second, training also occurs where firms recognize that labour skills are important and where they focus on devising innovative compensation packages. Third, firms that stress quality and total quality management are more likely to implement a training program.

Two final sets of Canadian empirical evidence concerning the links between HR and firm-level performance are noteworthy. The first is a huge and impressive program of research headed by Statistics Canada's John Baldwin. It examines a vast array of research questions pertaining to the interrelationships among technological and organizational change and various innovative HR and other management practices, and their impact on performance. In his well-known study of growing SMEs, Baldwin (1994) highlighted the importance to the growth process of two critical factors: management skills and skilled labour (see Figure 9). Most importantly, for present purposes, another study in this series (Baldwin and Johnson, 1995) emphasizes the importance of the mutually complementary relationship between technological advance and HR-based management practices such as training, innovative compensation packages, and TQM (see Box 10).

The other project, on competitiveness in Canadian manufacturing, is reported in Gordon & Wiseman (1994) and in their award-winning *Business Quarterly* article (Gordon and Wiseman, 1995). In their study of over 850 plants, senior staff were asked to report on the use of some 30 manufacturing plant practices. The plants were ranked on 21 measures of performance, and statistical analysis was used to identify the "discriminating" practices that made the difference between the most and the least successful plants. A powerful conclusion of this work is that "successful plants value more highly the role of their work force in achieving competitive advantage." As shown in Box 11, the three areas of work force development used in the most successful plants were teams, training, and employee decision making.

Box 11**Best Plant Practices: The Human Resource Factor**

(by John Gordon and Joe Wiseman, 1994)

The Approach

- mail questionnaire to senior staff in 3300 manufacturing plants (50 or more employees), mainly in Ontario
- 850 usable responses

The Analysis

- 21 measures of plant success were used to define performance.
- Plants were ranked on their scores on these measures.
- Sub-groups of least — and most — successful plants were identified.
- These were then compared on their usage of some 30 manufacturing practices.
- The "discriminating" practices — those that distinguished more successful from less successful — were identified.

The Results

"Successful plants value more highly the role of their workforce in achieving competitive advantage"

Three tools of work force development are used in the more successful plants:

- **Teams:** on average, exceptional plants have more than half their work force in teams and use them cross-functionally.
- **Training:** better plants provide more training for both production and supervisory employees and go beyond technical skills to include basic problem-solving and quality techniques.
- **Employee decision making:** much more common in the more successful plants.

Perhaps the most important conclusion, however, is that the impact of HRM practices on performance is greatest when they constitute a mutually supportive system. Individual policies or programs may have little effect on the bottom line, but a concerted strategy reflecting corporate climate and ideology may have substantial payoffs.

The Bottom Line

Clearly one has to be modest in one's claims of high-performance impacts in the Canadian context. Results to date are promising but sparse. Indeed, the situation cries out for a concerted program of empirical work on the determinants of micro-level performance. In the United States, however, there is by now a

considerable empirical literature. There, it seems fair to say that there is a persuasive body of evidence showing that the implementation of bundles of HR practices, in concert with broad corporate goals and strategies and with the other management policies and production practices that define what MacDuffie (1995) calls organizational logic, has had salutary performance effects.

Mention has already been made of the extensive review of studies by the U.S. Department of Labor (1993). Now, two other recent American studies bring further support to the conclusion of positive performance effects. The first — plainly entitled "Do employee involvement and TQM programs work?" — draws on a well-known continuing study of *Fortune 1000* companies begun in 1987 by management guru Ed Lawler and associates. The study (Mohram, Lawler and Ledford, 1996) shows that a variety of programs such as self-managing teams, gain sharing, training, pay-for-knowledge, TQM, and quality councils, in conjunction with other innovative practices such as system process control, just-in-time production, etc., had shown considerable growth in recent years. Moreover, statistical analysis strongly suggests that such practices have acted in a synergistic manner to produce positive performance impacts on a range of measures that include productivity, customer satisfaction, quality and speed, profitability, and employee satisfaction. The overwhelming majority of companies believed that their EI (81 percent) and TQM (83 percent) programs were successful.

The second study (Kling, 1995) is a comprehensive review of some 17 major U.S. contributions to the literature, some of which are, themselves, reviews of other sets of studies. Kling looks at research that uses quantitative measures of productivity, quality, and financial performance that are comparable across firms. Three sets of practices are examined — training, performance-based compensation, and employee involvement. In reporting that the studies demonstrate positive correlation between work practices and firm performance, the author is careful not to claim causality, but for the general reader this must be a formidable body of circumstantial evidence. Like Lawler and many others, Kling concludes that the impact on performance "of systems of integrated practices appears to be greater than the sum of independent impacts when each component is implemented in isolation."

5. THEORETICAL AND METHODOLOGICAL ISSUES

Theory

A number of theoretical issues in the literature on high-performance work systems have important implications for research design and methodology as well as for policy considerations. Several such issues are discussed briefly in this section. They are highly interrelated but include:

- theoretical perspectives
- concepts of "holism," "system" and "fit"
- equifinality and interdependence
- intervening processes and variables.

It should be made clear at the outset that this field of study and practice is extremely multidisciplinary, with contributions from the fields of industrial relations, industrial psychology, management science, sociology, and economics, among others. Little wonder, then, that it has been criticized for lacking a solid theoretical foundation (Delery and Doty, 1995; Doty and Delery, 1996). The latter argue, for example, that one reason for this is that three different modes of theorizing have been used without any explicit recognition of the distinctions among them. Some authors have adopted a "universalistic" perspective that suggests that there exists a set of best practices that will always lead to superior outcomes. Examples of this approach would include Pfeffer's (1994) identification of 16 management practices (including participation and empowerment, incentive pay, and training and skill development) that result in higher productivity and profitability; and Osterman's (1994) contention that innovative practices such as teams, job rotation, quality circles, and TQM yield productivity gains for all organizations.

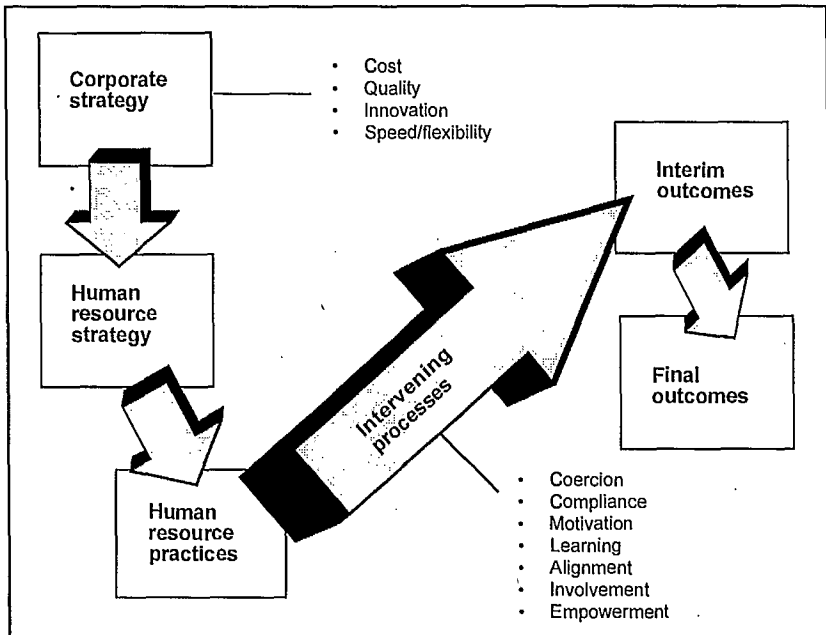
Others have used what Delery and Doty call the "contingency" perspective, which argues that in order to achieve high performance, an organization's HR practices must be consistent with the overall corporate mission and strategy as well as with other structural characteristics of the organization (its technological, organizational, and communication structures, for example).

A third approach draws on the "configurational" theories that are emerging in the literature of strategic management and organization theory. This is a holistic approach in the sense that it focuses on the system, the pattern, and the combinations of practices, and on the interdependencies and synergies among them. A central tenet is the notion of "equifinality": there are many equally effective combinations or "bundles" of practices that will have positive performance impacts. And the impact of a bundle or system of practices will be greater than the sum of the impacts of individual practices. This is because of the interdependencies among practices, particularly of those that are synergistic: skill-based pay may lead to an upskilling of the work force, for example, but it may also have salutary effects on motivation, which is in turn improved by employee involvement; the improved productivity flowing from improved skills may lead to higher pay, reinforced motivation, resolve to undertake still more skill upgrading, greater effort and involvement... and so on. At the same time, of course, practices may be substitutes for one another — there are various ways to motivate employees. For example, if an employer decides to adopt performance-based pay, he can choose from a variety of gain-sharing, productivity-sharing, and ESOP plans.

A concept that derives from the contingency approach mentioned above but that is also very much a part of the configurational perspective is "fit." Thus analysts talk of vertical or external fit to mean the extent to which HR strategy and its component practices derive systematically from, and are consistent with and supportive of, the broader corporate mission and strategy. In terms of Figure 10, then, vertical fit refers to the two blocks at upper left in the flow diagram. It is hypothesized that the snugger the fit, the better the performance outcomes. Horizontal or internal fit means that HR practices must be consistent with other management practices in the firm, such as TQM. MacDuffie (1995) provides an excellent example of synergistic "fit" between bundles of HR practices and a set of a manufacturing production policies and practices. And finally there is the fit or alignment between individual values, attitudes, and aspirations and those of the team, work unit, and overall organization.

Clearly, all of these issues have implications for research design and also, most importantly, for policy. One final theoretical consideration is of particular importance in this regard. It is the

Figure 10
High-Performance Workplace Systems



question of the “intervening processes” that translate the HR practices into interim outcomes (see Figure 10). It is curious, given their practical significance, that these processes have received scant attention in the literature on HPWS. In Doty and Delery’s (1996) attempt to advance theory building, for example, they concentrate on the notion of a high performance work *force* — its characteristics and the HR practices needed to create them. They are set out in Box 12.

Doty and Delery go on to interpret this schema in terms of their three assumptions about systems: holism, equifinality, and interdependence. Thus holism is incorporated by arguing that the six characteristics shown in Box 2 are necessary conditions for high performance and that there are synergies among them. Equifinality resides in the fact that alternative practices may lead to any one characteristic. And interdependence exists because individual practices may affect several work force characteristics — there may be synergies, substitution, and complementarity. But while this

Box 12
The High-Performance Work Force

Characteristics	HR Practices
Skilled	Training, staffing
Flexible	Multi-skilling, cross-training, pay-for-knowledge
Secure and committed	The possibilities here – job guarantees may have to be withdrawn; core/periphery models – are limited and risky
Empowered	Employee involvement; quality circles; teams
Informed	Performance appraisal; newsletters; participative decision making
Motivated	Pay-for-performance

framework is undoubtedly useful, it leaves out the intervening processes and variables by which HR practices translate into interim outcomes (i.e., the work force characteristics) and how these in turn impact performance.

The question of intervening processes is clearly important for policy and practice. It may not be enough, for example, to simply announce that an ESOP option is now available or that henceforth a certain policy will apply. The question is: How do you "make it stick"? How do you generate enthusiasm, participation, and commitment. How do you "walk the talk" to get "buy-in"?

While the literature is remarkably thin on the intervening processes issue, a recent paper by Javitch and Burke (1996) on the linkage mechanism by which employee involvement leads to motivation and thence to enhanced organizational performance provides some useful insights. The following paragraphs are a very brief synthesis of Javitch and Burke's main points. The authors outline some of the theories of motivation that may be relevant in the context of HPWS. Interdependence theory, for example, states that individuals are motivated to perform not only because of potential

personal gain but also by the *processes* by which the outcome is pursued. For example, workplace processes that reflect respect and consideration and a sense of fair play ("procedural justice") are more likely to be successful on this argument. Hence incentive and reward systems tied to productivity will work best in conjunction with supportive programs such as participative decision making and quality-of-working-life programs.

Next, Kelman's (1958) theory of "social influence and attitude change" posits three motivational processes, labelled "compliance," "identification," and "internalization." In the first, it is essentially a stick-and-carrot mechanism that changes attitudes and behaviour. In the second, individuals change attitude and behaviour through social identification: they believe that acting in a certain manner will enhance their relationship with the demander of such behaviour. In the third, the individuals *fundamentally believe* in the new attitude or behaviour because it is consistent with some basic value system that they hold. Hence we encounter another example of "fit": employee involvement practices enhance motivation to perform because they are consistent with workers' basic belief in democratic decision making and individual rights.

Maslow's (1943) well-known theory of motivation involving a hierarchy of needs provides another insight. Maslow maintained that fulfilment of needs changes an individual's cognitive processes, attitudes, and behaviour. Self-actualization, the highest need, is the person's desire to experience a feeling of achievement, competence, and personal growth. And research by Lawler (1992) suggests that workers who seek self-actualization are motivated by employee involvement and job enrichment programs that create autonomous and meaningful tasks and provide an opportunity to develop greater competency in a wider variety of tasks.

Finally, Javitch and Burke invoke Bandura's (1977) "theory of self-efficacy," which describes people's perceptions of how well they can execute certain actions needed to deal with prospective situations. Central to this theory is the fact that a critical element for accurate efficacy assessment is regular and high-quality information, especially about mission and performance. Thus, to the extent that HR programs such as employee involvement systematically cater to information needs of this type, they will heighten motivation and

enhance performance; in the case of the group, they will also impart a more positive perception of work unit climate.

Such theoretical insights from motivation theory are instructive in suggesting some of the desirable characteristics of HR practices and conditions that should be met if the practices are to translate into performance.

Methodology

For researchers, practitioners, and policymakers interested in the empirical evidence on management strategies and practices to improve performance, the question of methodological approach is critical. What follows is a brief summary of the points raised in recent papers on methodological issues relating to HPWS by Gephart and Van Buren (1996), Arthur (1995, 1996), Brown and Rascher (1996), Hunter and Pil (1995), Klein and Dansereau (1996), MacDuffie (1995), and Levine (1996).

The first point has to do with the appropriate *level* at which the investigation should be conducted. The consensus seems to be that a multi-level approach is preferable because the relevant practices, the intervening processes, and their impacts are played out at various levels:

- the individual;
- the team;
- the functional unit;
- the establishment;
- the firm; and
- the corporation.

This is important for a number of reasons. Certain performance measures may not be available at all levels — financial measures, for example. And there may be considerable diversity within organizations: not every department, unit, or team is necessarily of the same high-performance calibre, but the study of such heterogeneity may be instructive. Are there key departments, functional units, etc. whose high performance is a necessary and/or sufficient condition for the overall organization to warrant the HPW

label? Do the intervening processes play out differently in different subsystems of the organization? Do they yield different outcomes or (as per equifinality) are there cases where different bundles of practices and/or different intervening processes all yield high performance? Thus Klein and Dansereau (1996) advise researchers to "study the Russian doll" by peeling off successive layers of sub- and sub-sub-systems nested within the organization.

Next, the method of data collection is a complex issue, beset by various trade-offs. Case studies, for example, can yield rich insights from very detailed data. The researcher can combine structured interviews with key managerial personnel, based on a standard, replicable protocol, with semi-structured exchanges with a cross-section of other members of the organization. This can be supplemented by observation of meetings of management, worker representatives, teams, etc., and by a study of policies and procedures, annual reports, and other company documents. In addition, case studies help identify exemplary practices as well as instructive anomalies — high performers that don't seem to have the trappings of the HPWS model, for example. But they are expensive and subject to selection bias (since success is more likely to be reported), and it is often difficult to generalize from them.

Surveys, by contrast, yield more observations for statistical analysis, and their results are more amenable to generalization. But response bias is a problem. Single respondents may simply not have enough knowledge of the whole organization and its various policies, practices, and procedures to furnish unequivocal answers. So the researcher needs either to run parallel surveys for different questions and/or units of the organization, or to have a single survey that identifies multiple respondents — with attendant problems in either case. A related issue is the design of the actual questions: it is critically important to frame questions that focus on clearly conceptualized terms that are well, and widely, understood. This can be achieved by borrowing from the best of existing instruments and ensuring mutual understanding of surveyor and respondent by anchoring questions in definitions or frames of reference. This enables the researcher to maximize generalizability and provides him with possibilities of comparison with other investigations.

Two other considerations about survey questions should be noted. The first is that they should be designed to elucidate some of

the important theoretical questions described above. These include questions about vertical and horizontal fit, about the linkages among "bundles" or patterns of workplace practices, about intervening processes and variables, and so on. Finally, a most important caveat is in order. While it is true that the empirical evidence points to systematic differences in the incidence of innovative practices in firms of different sizes, researchers are increasingly convinced that most of the surveys producing this evidence are "large firm" surveys. Ask large employers if they have a "formal EI program," for example, and they will most assuredly answer in the affirmative. Smaller employers may say no, but they may well have wonderful informal examples of EI — and ones that, in contrast to those of their giant counterparts, cover all workers.

Of crucial concern in methodological design is the dimension of time. Most observers recommend a research approach with a longitudinal feature, for a number of reasons. First and foremost, the mere simultaneous observation of a certain set of characteristics of an organization (such as management strategies, policies, and practices) and certain performance measures (such as productivity, quality levels, profitability, etc.) is not enough to establish cause and effect. It may be that the success of the firm affords it the luxury of indulging in innovative work practices! So observation over time is needed to help establish the causal relationship. In addition, one wants to study systems over time in order to investigate such questions as the evolution, transformation, endurance, stability, and failure of policies and practices and, indeed, of organizations themselves.

One may conclude that a judicious combination of the survey approach and more in-depth studies is the preferred procedure if time and budgets permit. (The case studies can serve to check measurement error). The approach should be multi-level and longitudinal, though reliance on recall data is clearly problematical because of the practice of rotating managers in many firms. Ideally, respondents agree to be resurveyed in, say, three years' time. A powerful dimension is added if an employee survey can be mounted in parallel. Finally, the program of research can be usefully designed to incorporate a very practical dimension. If it is used to identify exemplary practices and to benchmark firms within and across industries, it has powerful attraction to public and private policy-

makers. Such an approach may even improve response rates and accuracy inasmuch as there is a useful *quid pro quo* for respondents.

The Workplace and Employees Survey

In Canada, a recent development holds out considerable promise of being able to address at least some of the theoretical and methodological questions discussed above. Sponsored by Human Resources Development Canada and designed and undertaken by Statistics Canada, the Workplace and Employees Survey (WES) is a unique initiative to gather data on a wide variety of labour market questions using a parallel investigation of both workers and firms over time. It can, moreover, accommodate supplementary questions on particular topics. It covers a variety of characteristics of workers and establishments, including use of technologies, human resource practices, employment growth, wages, and organizational change.

The survey is designed specifically to come to grips with some of the far-reaching changes that have characterized the evolution of the labour market in recent years. The kinds of research topics that it may inform include:

- job security and core/periphery employment patterns;
- technological and organizational change;
- adoption of technology; training and skills;
- competition, technology, and wages of Canadian workers;
- innovative forms of organization, compensation, and hours of work;
- the role of unions; and
- training: incidence, commitment, costs.

The survey is now (spring 1996) in a pilot phase that covers 1,000 employers and 5,000 workers, and it will furnish data for initial analysis in the fall of 1996. The full survey is intended to cover some 5,000 firms and 25,000 employees. Clearly, it affords enormous opportunities for statistical analysis that can address numerous policy questions on a variety of dimensions.

6. THE ROLE OF GOVERNMENT

Rationale

Why should governments be involved in the diffusion of high-performance HR management practices? The simple answer is that the empirical evidence points to two conclusions. First, innovative HR management strategies appear to pay off in terms of crucial national economic goals. Second, there are reasons to believe that firms are not adopting these strategies as rapidly, as extensively, and as comprehensively as efficiency considerations would warrant.

The more theoretical case for involvement is well known and need be restated only very briefly. First, there is the question of "externalities." All of the new management strategies under consideration require substantial investment in people. So there may be legitimate concerns about investors' ability to capture sufficient benefits if the work force is highly mobile. The second consideration is imperfect information. It is notoriously difficult for firms (particularly small firms) to assess the costs and (especially) the benefits of these strategies. This fact is mirrored in the paucity of information on performance outcomes, as shown in the empirical section. A third rationale for a government rôle is that there is a "public good" element to investment in such strategies that is analogous to the case of R&D and the diffusion of "hard" technologies. To the extent that firms investing in these approaches compete more effectively, there is a collective benefit in the form of wealth creation and jobs.

Thus governments in numerous jurisdictions have recognized the need for a role in one or more of these areas. Skills training is probably the most common focus of some kind of government involvement — through outright provision of the training, through subsidization, some variant of a training tax, tax credit, etc. and through the establishment of institutional structures to provide information and coordination. Many foreign governments have programs to promote OI and TQM, and governments in most developed jurisdictions have programs to encourage collaborative workplace relations. Frequently, however (and Canada is no exception), the various elements of total innovation — physical capital, human capital, and organizational capital — have been addressed in a compartmentalized fashion.

Before outlining the more specific case for Industry Canada's involvement in the diffusion of innovative workplace practices, we make the following assumptions:

- Competing successfully in fiercely-contested markets will continue to be a major objective of policy.
- Continuous innovation will be a cornerstone of the competitiveness strategy.
- Human resource development will increasingly be recognized as an integral component of innovation.
- While the economy has shown some job creation potential in recent years, "restructuring" will continue apace, so that labour market adjustment issues will still figure prominently; but the balance will tip toward "upside adjustment."
- Governments' role will continue to be interpreted as that of facilitators rather than providers.
- Accordingly, policy will emphasize the construction of knowledge bases, the dissemination of information, and the integration and coordination of activities.

A specific role for Industry Canada rests upon a number of points. As the industry department concerned with innovation, it appears logical that its services to clients should reflect a comprehensive approach to innovation that encompasses not just new technologies embodied in the physical plant and equipment, but human and organizational capital as well. "Hard" technology has traditionally been the department's principal focus, but the human element — in the form of management development issues and adjustment assistance — has also received attention.

Furthermore, there are signs that other components of innovation and change, such as organizational design, skill acquisition, and development, and collaborative workplace relations, are beginning to surface more frequently in the articulation of clients' needs. It follows that:

- As the knowledge-driven department for the knowledge-based economy, IC must generate information and provide advice not only on the acquisition and diffusion of new technologies, but also on the organizational settings and skill development and management practices that will make those technologies work.
- The need is an urgent one: there is concern that Canada lags in the technology race; but the evidence suggests that our rate of innovation on the people side of the equation is slower still.
- Greater emphasis on HR issues is consistent with two important departmental priorities — namely, partnerships (with the department of Human Resources Development and other federal departments, the provinces, and the private sector) and the continuing assessment of competitive viability that is undertaken through the “sector competitiveness frameworks” exercise.
- Increased emphasis on HR is timely, since its linkage to competitiveness is one of the major conclusions of the Prosperity Consultations of the early 1990s.
- Adjustment continues to be a big issue; IC was formerly involved in the “downside” adjustment of declining sectors and firms and increasingly in the “upside” adjustment of promising, fledgling organizations. In both cases, information and advice about organizational innovation and HRM are essential.
- The promotion of innovative management practices for the enhancement of productivity and competitiveness is complementary to the department’s focus on SMEs since, as the empirical evidence clearly shows, it is these firms that lag in the adoption of such practices.
- There seems to be growing enthusiasm for a more integrated, coordinated approach to the delivery of services to business. Since HRM and organizational innovation would be an integral component of such an approach, it is important that IC develop and continuously enrich the knowledge base to support such an initiative.

Activities of the Federal Department of Industry

Clearly, the kinds of innovative HR management practices that are the focus of this paper can be encouraged by a variety of agencies, both public and private, and increasingly through partnerships involving representatives of the key stakeholder groups. In the public sector, the provinces are all involved with varying degrees of commitment and emphasis. At the federal level, the departments of Employment and Labour have — in their various guises over the years — been actively involved in many aspects of human resource development.⁶

The Industry department has been involved in a number of ways. First, it has adopted a set of initiatives designed to address the need for a long-run, strategic approach to human capital formation. For example, the department works closely with the universities and the granting councils to develop policies for the promotion of research and highly qualified personnel. Schoolnet (see below) is an electronic network linking schools right across the country with libraries and other data sources. A number of programs, such as the Canada Scholars Program and National Science and Technology Week, raise the profile and polish the image of science and technology. The Business Employability Skills test is a venture, in partnership with the Conference Board, designed to foster the mutual understanding of educators and industry on the preparation of young people for the work force. The National Graduate Register is a user-friendly on-line service to match employers' needs with the skills of recent graduates.

A number of programs and activities designed to provide services to business relate more specifically to the OI/TQM/HRM

⁶ We would argue, however, that the primary HR focus of "Manpower and Immigration," "Employment and Immigration," or latterly "Human Resource Development" has been "defensive" training programs designed to combat the consequences of inadequate vocational preparation at the lower end of the skill spectrum. Even in the more proactive, "upside" labour market programs such as those aimed at skill shortages, the focus appears to have been more on imparting specific skills to individuals than on the more strategic goal of innovative HRM practices to enhance competitiveness. And the admirable initiatives of the federal labour department to promote workplace innovation have tended to emphasize the (assuredly important) benefits of labour-management cooperation rather than more tangible improvements in productivity and competitiveness.

nexus that is the focus of this paper. A good example of the growing importance of these issues is provided by the experience of the Advanced Manufacturing Technology Application Program (AMTAP), which operated from 1988 to 1993. The program reimbursed manufacturing companies for part of the cost of engaging consultants to assess the technical and commercial feasibility of upgrading through advanced technologies and modern management practices. The final (unpublished, internal) evaluation report on the program contains the following telling quotation: "Although AMTAP was designed to examine exactly what its title suggests, it was always foreseen that assessments would cover business management issues. *It was unexpected that so many recommendations focused on training, organization and quality.*"⁷

Various sector branches of the federal department of Industry engage actively in numerous ways — information exchange, seminars, surveys, workshops, conferences, joint research, site visits — on topics relating to OI, TQM and HRM. Two outstanding examples of departmental activities in these fields that have appeared recently are the ISC (1993) survey of quality management practices in Canadian manufacturing firms, *Striving for Quality*, and the collaboration between the Aerospace Industries Association of Canada (AIAĈ) and the Aeronautics Branch of Industry Canada that produced the *Handbook on Total Quality Management*.⁸

The department has also performed a brokerage role in forging alliances between industry and the academic community for the purpose of developing knowledge and skills. One recent example, known as the Rosenheim project (after the Bavarian institution on which it is modelled), is a federal/provincial/industry/university partnership seeking to produce world-class graduates at the University of British Columbia for the wood-processing industry. Another similar alliance, involving the University of Windsor, St. Clair College, and the Chrysler Corporation, will produce graduates to work in R&D in automotive engineering.

⁷ Emphasis added (1993).

⁸ Canadian Aerospace Industry (1993).

For Industry Canada the case for more active involvement in the adoption and diffusion of advanced management strategies seems compelling. The potential of powerful new technologies cannot be reaped in anachronistic settings with outmoded corporate strategies. Innovation must be comprehensive. The evidence reviewed in this paper suggests that the payoffs to such an approach can be considerable. Yet the penetration of OI/TQM/HRM in Canada is not great. Many studies find general management skills wanting; the problem is particularly severe for smaller firms. It is clear that valuable work is already going on: activities relating to OI, TQM and HRM are being undertaken under the auspices of existing departmental programs. And networks exist. But the knowledge base needs strengthening and initiatives must be coordinated. Where do we go from here?

Quo Vadis?

First, there is a serious information gap. There is no systematic and continuous means to identify applications of OI/TQM/HRM practices in Canada and to classify, analyze, monitor, and evaluate them. Useful work is certainly going on: practical applications in industry, government programs of various hues, research in universities and other institutions. And diffusion is encouraged by industry and professional organizations, sector councils, the CLMPC, the Canadian Labour Force Development Board (CLFDB), and so on.

Well-articulated policy positions by major national unions clearly demonstrate a growing willingness of organized labour to participate in equitable efforts to improve competitiveness and employment.⁹ There are numerous examples of collaborative efforts.¹⁰ So the potential exists. But activities are piecemeal, and a coordinated approach is missing. There is no clearinghouse, no central repository of information, no means to sustain concerted and continuing research and evaluation of the kinds described in O'Grady's (1994) international review.

⁹ See, for example, Steelworkers (1991).

¹⁰ Such as the activities of the Industrial Adjustment Service, the Labour Management Partnership Program, and the Sectoral Councils.

Second, services to business need to be explicitly designed to reflect a comprehensive approach to innovation. Many government programs have evolved in such a way as to cover, willy-nilly, a more comprehensive set of issues than was originally intended. The glamour of, and enthusiasm for, new technologies has of harsh necessity been tempered by an urgent need for more general, more basic management skills.

In examining the way ahead, three considerations appear potentially useful. The first is a selection of recommendations of an ISTC (1992) task force that appear to reflect an appreciation of the "comprehensive innovation" approach advocated in this paper. The second is related initiatives in other jurisdictions. The final is a set of contemporary developments relating to partnership and to business and technology extension networks.

As a starting point, a few selected excerpts from the task force's recommendations appear to constitute a useful guidepost (ISTC, 1992, pp. vii to xi). Consider:

That excellence in management be made a fundamental element of the technology diffusion strategy.

That the use of international benchmarking as a means of assisting firms to gauge their performance and competitiveness be expanded.

That the government should also continue to investigate and develop ways and means of providing programs and services which help to change the mindset and build up skills of managers.

That ISTC should examine the possibilities of establishing closer partnership arrangements with NRC/IRAP and Employment and Immigration Canada leading to the creation of more skill-building activities for young men and women.

That holistic approaches should be taken to resolving the difficulties that firms have in acquiring and deploying appropriate technologies. In particular, there is a need to collaborate and cooperate more fully between existing technological and business-support programs and services.

That ISTC and IRAP networks should jointly explore the possibilities of establishing a national technology clearing house for Canada so that both domestic and foreign technologies could be examined and banked for use upon demand by agencies, support organizations and firms repairing them.

A plan should be developed to establish an institution, preferably within the private sector, with joint public/private support, to carry out technology assessments on an on-going basis, in critical areas of science and technology.¹¹

That support be given towards the development of service industries (e.g., consultants, training organizations) as key agents in the "close to the customer" delivery approach.

Next, initiatives of other jurisdictions provide food for thought. For example, the 1995 *Economic Report of the President* outlines the Clinton administration's commitment to the concept of the HPW:

This administration is pursuing a number of policies to enhance the trend toward workplaces that rely on high levels of skill, lifelong learning, and continuous skill improvement. High performance workplaces are typically quite different from traditional ones. They have been transformed so as to give employees greater ability and the incentive to improve their workplaces. Workers' ability to generate good ideas is often strengthened by high levels of training and of information sharing. Forms of worker empowerment vary widely but often include work teams and forms of representative participation such as elected committees of workers or union representatives. Incentive schemes vary as well but typically reward individuals for learning new skills, reward groups of workers for their collective success and build cohesiveness and solidarity more than individualistic competition. The effects of the high performance workplace can be impressive. The Department of Labor recently reviewed a host of studies on the effects of high performance work practices on organizational performance. The result is a collage of evidence that a coordinated change in work organization can pay handsome rewards.

This approach reflects Secretary of Labor Reich's (1993) conclusion that "there is a growing body of empirical evidence that high-performance work practices are good indicators of long-term productivity and profitability."

¹¹ And, we would add, "and business management practices."

The vaunted National Industrial Extension Service (NIES) in Australia is a joint federal/state networking and information advisory service to provide one-stop shopping for business. Related developments include a Best Practice Demonstration Program and the Workplace Reform Program to provide financial incentives for workplace reform.

Some interesting ideas are found in a discussion paper prepared for the former Ontario government and in which it is proposed that a Work Organization Service (WOS) be established. The ideas stemmed in large part from the findings of the now-defunct Task Force on the Organization of Work of the Premier's Council on Economic Renewal. The co-chairs of that task force concluded (Ontario Ministry of Labour, 1993):

There is powerful conviction on the part of the members of the Task Force that the extension of programs of change in work organization, on a broader base, to all sectors of the economy, is important to the economic renewal and social well-being of our Province.

Accordingly, the objective of the WOS is to support development and diffusion of positive workplace change by providing information and brokerage services to organizations embarking on a joint process.

The approach is to catalyze networks to supply integrated, readily accessible support to organizations by

- providing state-of-the-art information;
- linking customers to suppliers; and
- addressing existing gaps and inequities that pose obstacles to future change.

The WOS should

- be grounded in a statement of principles, agreed to by business and labour, for positive workplace change;
- be a small, customer-driven entity mandated to support and promote positive workplace change in the most cost-effective, flexible, and equitable way;
- not duplicate or displace existing services but rather provide referral to those services, address gaps, and channel public

and private resources to foster a network of workplace change supports; and

- have support and joint leadership from business and labour.

Its functions could include

- ***Information***

Collecting and distributing print and electronic documents responding "just in time" to the needs of the workplace parties; utilizing state-of-the-art information technologies and databases to remain abreast of local, provincial, national and international developments.

- ***Orientation and Diagnostic Advice***

Identifying needs; developing action plans; linking employers, workers, and unions to credible change leaders.

- ***Brokerage and Referral***

Once needs and opportunities are identified, guiding people and organizations to existing service providers, such as supportive government programs, private sector consultants, and financial support sources.

- ***Consultant Inventory***

Maintaining an inventory of experienced, credible facilitators, and outlining the guidelines under which consultants operate in an organization.

- ***Research/Evaluation***

Undertaking or supporting the publication of research on critical success factors, reasons for failure, and benchmark data; case studies; support for leading-edge research.

- ***Conferencing/Learning***

Arranging opportunities for joint learning through regional and sectoral symposia. Working with educators to influence curricula;

engaging deans of business and engineering schools, industrial relations institutes, etc.

- ***Site Visits and Study Missions***

Arranging visits to innovating organizations and joint missions to innovating jurisdictions. Connecting "best-practice" organizations.

- ***Awards Program***

Running an awards program to identify leading individuals and organizations; arranging financial incentives to award winners to disseminate their experience.

Finally, a number of current developments show considerable potential for promoting high-performance HR management practices in Canada. For example, such practices are clearly an eminently logical object of the growing collaborative efforts between the departments of Human Resource Development (HRD) and Industry. Indeed, a framework for such collaboration exists in the form of the ongoing interdepartmental analyses of industry sectors known as sector competitiveness frameworks or, at HRD, the Sector Partnership Initiative. The aim of these sector studies is to encourage, and actively work with, stakeholders in specific sectors to systematically assess various dimensions of competitiveness, including current viability, future prospects, and most importantly, needs and means for improvement. Particularly important in this exercise has been the institution-building that has led to the development of an impressive number of sector councils promoting collaborative efforts of labour and management to tackle a variety of competitiveness issues of mutual concern. HRD issues have been prominent and have often been those that have met with success. The most widely acclaimed sector councils are probably the Canadian Steel Trades Employment Congress and the Sectoral Skills Council of the electrical/electronics manufacturing industry.¹² While the former has been concerned primarily with the downside adjustment problems of the industry, the latter's focus has been mainly on future training needs. These institutional arrangements

¹² For a detailed review of the role of business/labour sectoral initiatives in economic restructuring, see CLMPC (1992).

afford a unique means to focus the collaborative efforts of sector stakeholders on key competitiveness issues and could encompass an array of innovative workplace strategies.

A recent initiative by Industry Canada that has provided the focus for nationwide consultation is known as *Strategis*. It, too, promises to take the "comprehensive innovation" approach advocated in this paper and addresses the special problems of SMEs.

These new initiatives reflect the following premises:

- A wide variety of technical and business services is offered by governments, government-funded institutions (i.e., universities, community colleges, technology, and other centres), and by the private sector.
- These services cover a great many of the basic technology needs and technology-related business needs of SMEs.
- These services have not, until now, been promoted or delivered in any integrated fashion except through local networks.
- With a few exceptions, these services have essentially been delivered piecemeal, on a region by region basis, so that firms in one area of the country have not had ready access to services offered in another part of the country that could be of benefit to them.
- The current slate of services emphasizes several key areas relevant to the concerns of this paper: basic awareness; training; marketing; and the complex issues related to competitiveness benchmarking, diagnostics, management, financing, best practices, standards, and regulations.

Some specific elements of the strategic framework are of particular relevance to the subject of this paper. The widely acclaimed *Schoolnet* program links some 6,000 schools and 1,500 libraries across Canada, affording students and educators rich

opportunities to exploit a wide range of data sets and facilities. Next, the National Graduate Register is a user-friendly on-line system designed to more effectively match graduates' skills and attributes with the job requirements of Canadian employers. Third, the question of management skills development is addressed through an initiative known as CONTACT! This is essentially a network of networks that, through a unique public/private partnership, draws upon a wide variety of sources (such as business schools, private firms, governments, intermediaries, the business media, and international organizations) to feed a directory of management information.

A final related initiative is the Canadian Technology Network (CTN), which delivers solutions to technology problems through an integrated package of business services. The basic approach builds upon the highly successful model employed by the Industrial Research Assistance Program (IRAP). It involves a national network of highly visible, easily accessible "nodes" or entry points that may be located in any number of existing facilities involved in information dissemination in the broad fields of technological, organizational, and managerial information. For present purposes, suffice it to say that the basic concept is to tie together local networks to give them access to common tools from right across the country, to widen the range of business support services offered, to aid the coordination of policies and programs, and to improve ease of access for clients.

We would argue that these considerations, together, constitute a useful starting point. Thus the recommendations quoted above reflect sound principles that are congruent with the practical realities of contemporary industrial policy. Next, the examples from other jurisdictions contain the elements of a "vision" — mission, modus operandi, and institutional form. And finally the combination of cooperative frameworks (based on successful sectoral initiatives), a concerted emphasis on productivity, and indications as to how services may be delivered in practice (Strategies) point to ways in which the concepts may be operationalized.

Regardless of the outcome of the current confluence of forces, it is clear that the process is evolutionary, that policy formation is therefore continuous, and that in consequence informed decision making will place strategic intelligence at a premium. The role of research will therefore be crucial.

7. CONCLUSIONS

Research Needs

In considering research into management practices one can conceive of a spectrum of issues that stretches from mundane hands-on questions about the acquisition and development of the most basic generic skills (bookkeeping, pay and benefits, access to finance, etc.) all the way to the kind of strategic abilities that combine technological sophistication with global vision and the harnessing of leading-edge research in workplace innovation.

The front end of this spectrum is the primary focus of a number of initiatives of the federal department of Industry that focus on small businesses and their needs for basic skill (including management skill) development, advice, information, and financial support. But even here the role of research can be important.¹³ For example, much more needs to be understood about the reasons for SMEs' alleged deficiencies in management skills and, in particular, about their reluctance to invest in upgrading. Time and money are the usual answers given, but there are also suggestions that Canadian managers simply do not perceive their own needs. Hence awareness is an issue, and three useful lines of research immediately suggest themselves. The first is further empirical work on the impact of management skills development and innovative management practices on a range of bottom-line performance outcomes such as productivity, cost, quality, customer satisfaction, employee satisfaction, etc. The hard evidence, in other words, that convinces managers that, for example, investment in human resources has valuable payoffs. The second is a review and evaluation of the kinds of initiatives, activities, and events that appear to be effective channels for communicating the evidence on the bottom line. And the third is a review and evaluation of the most effective means of delivering the advice, information, and direct training services that will address perceived needs.

¹³ Recent departmental work on management skills development stresses the inadequacies of Canadian management in basic areas while acknowledging the importance of systematically tapping leading-edge research in management science; see Newton (1995).

Closely allied to the question of awareness, of perception of need, is the concept of self-diagnosis. A review and assessment of self-diagnostic tools, evaluation of their use in practice, and further testing through pilot projects could prove fruitful. And the supply-side question — the effective delivery of appropriate services — needs to be informed by a comprehensive inventory, classification, and assessment of the full range of providers of management skills development products and services.

Next, as mentioned earlier, there are some important gaps in basic information that are important to all segments of Canadian business and that seem best filled by surveys. Scores of surveys on topics relating, in one way or another, to innovative management practices are conducted annually. Many are useful or at least interesting in themselves and, together, are parts of the puzzle. What is lacking, however, is coordination, comprehensiveness, comparability, and continuity.

The need for *coordination* is obvious: the myriad studies are conducted for a variety of no doubt admirable reasons but without explicit reference to any coordinating schema. Incentives for investigators to explore and exploit opportunities for linkages, cross-references, and complementarities with other studies are therefore important. The second deficiency is with respect to *comprehensiveness*, and here there is, of course, a trade-off with tractability and cost. But if there is conviction among policymakers that "strategic" or comprehensive innovation is critically important, then surveys must reflect that conviction. Some, like the recently re-run Working with Technology Survey (WWTS) (Betcherman and McMullen, 1986), are comprehensive in the sense of covering a number of innovations such as new technologies, OI, and some HRM issues, though TQM, per se, is not covered. But this is an exception and, in any case, one would want ideally to cover technological and organizational change, as well as a variety of high-performance management practices, including but not limited to, TQM and HRM.

Next, *comparability* is vital if Canadian managers are to measure their performance against that of competitors at home and abroad. In this connection, the efforts made in the recent ISTC-Statistics Canada Survey of Innovations to achieve comparability with OECD

survey work must be judged admirable. Lastly, *continuity* is a concern. Surveys such as the WWTS and the HRPS provide valuable snapshots. But they should not be left to die: assessment of one's position at a point of time is critical, but one's progress over time is informative too. So longitudinal data is required. Given these considerations, it is vitally important that the exciting possibilities afforded by the new Workplace and Employees Survey (mentioned above) be fully supported, further developed, and enriched by complementary studies.

To return briefly to the question of comparative research, a number of dimensions should be addressed. Comparative information on the uptake of innovative practices in various countries, particularly our major trading rivals, is a vital part of any assessment of Canada's competitive position. What kinds of innovative practices are being used, and to what extent? What are the trends? What are the factors that shape the evolution of new organizational forms and new management strategies? Where are the success stories and what can be learned from them?

International research is also needed to understand the institutional structures that are used in various countries and, in particular, the role that governments play in promoting innovative management practices. Canada does have a number of bodies that, in principle, may be expected to contribute to such a goal; the CLMPC and the fledgling National Quality Institute are obvious examples. But management innovation does not seem to have the same prominence in Canada that it enjoys in other countries. Canada does not have anything to parallel the U.K. Employment department's Work Research Unit, Sweden's Leadership, Organize, and Participation Program, or the Office of the American Workplace. So comparative institutional research would be useful.¹⁴

Research is, of course, going on. Once again, however, what is lacking is coherence. For example, stronger, more explicit links are needed between the universities and industry so that the research and skill needs of the latter may be systematically considered in the design and delivery of courses and in the orientation of research.

¹⁴ Two noteworthy recent contributions in this area are Vickery and Blair's (1995) review of various countries' services to business and O'Grady's (1994) survey of international bodies for the promotion of workplace change and productivity.

Stronger links are also needed *within* the academic world among the scientists, engineers, economists, sociologists, psychologists, and management scientists whose disciplines each (and jointly) contribute to the process of innovation in industry. The classical twin solitudes of the engineering and business schools are slowly breaking down; business schools are reaching out to the private sector, offering courses in entrepreneurship and small business management; co-op programs are expanding; and many schools are beginning to recognize the importance of international orientation and links. These are welcome signs that should be encouraged. But to build success it is necessary to have a sound framework of evaluation. What are the models, and where? What is their record?

The Way Ahead

A few concluding observations appear to be in order. First, there seems little prospect of any letup in the severity of global competitiveness, the speed of technological advance, and the turbulence of industrial restructuring. It's a safe bet, therefore, that innovation in the single-minded pursuit of productivity and quality will continue to be a priority of management. Thus it would be dangerous to dismiss OI, TQM, and HRM in their various guises as mere fads of the latest management guru to find favour. "Empowerment," "continuous improvement," and "pay-for-knowledge" may, as catch phrases, go the way of the dodo. But the basic underlying principles that they reflect will likely endure: the need for continuous and comprehensive innovation; the emphasis on quality; a global mindset; and the focus on knowledge, ideas, flair, creativity, flexibility, and continuous learning.

Next, it seems clear that we have entered a new era with respect to the role of government. This is not simply a temporary swing in the ideological pendulum but also a practical response to the harsh fiscal realities of crushing deficits and debts in many countries, including (and one is tempted to say especially) Canada. Massive financial aid to industry is simply no longer feasible. Government's role is increasingly that of facilitator, knowledge broker, producer, and distributor of strategic intelligence. At the same time, the balance, the emphasis, of economic policy has seen some subtle shifts. While macroeconomic policy will undoubtedly continue to be extremely

important, its margin for manoeuvre is minimized by fiscal crisis. It is to micro policy that one must look for any hopes that the government might assist in the pursuit of prosperity. In Canada this means, in essence, that much will be expected of the federal and provincial ministries of industry and human resources.

Some broad directions and principles are already beginning to emerge. "Help private sector stakeholders to do it themselves" is now a clearly entrenched maxim. "Partnership" is a watchword. The success of various sectoral initiatives has been built upon and extended but with due acknowledgement that the sectoral model must not be allowed to become Procrustean. User-friendly, one-stop shopping for (especially small) business clients is the ideal, and the various intelligence products and services of the new Strategis initiative would seem to hold considerable promise.

With specific reference to the innovative strategies that have been the focus of this paper, a number of points should be considered. The first is that while there are a large number of programs, institutions, and research activities that relate to the measurement, evaluation, monitoring, and diffusion of high-performance HRM practices, there seems to be a singular lack of coordination. One hesitates to recommend the establishment of yet another national institution to perform this function, but it seems clear that some rationalization of overlapping mandates could yield efficiencies. Second, notwithstanding the plethora of programs and activities, there are gaps that governments could usefully help to fill. Diffusion of innovation has, until recently, focused almost exclusively on hard technologies. Governments can take the lead in promoting an integrated, comprehensive approach to innovation by ensuring that the concept is well articulated and fully reflected in such initiatives as Strategis, and that the latter is continuously irrigated by the latest and most useful information.

Finally, the diffusion process must be enriched by research — and there governments can help to forge the crucial links between universities and business. Better access to the R&D end of management science research — leading-edge techniques, international business research, international benchmarking — is critical. Consortia linking the business community to the centres of international business studies are one possible way of achieving this.

A promising approach is the extension of the concept of the networks of centres of excellence to include the discipline of management science.

This paper has attempted to suggest that, in response to powerful global forces transforming industrial markets, new HR management strategies have evolved. They will continue to evolve and no doubt their names will change. For the present, however, they reflect certain fundamental principles that will be necessary for managers to handle ferocious competition, a giddy pace of change and daunting market turbulence. The evidence suggests that the strategies can produce positive impacts on organizational performance. The evidence also suggests, however, that Canada's uptake of high-performance management practices is less than optimal and that we may not be keeping pace with trading rivals. Governments can play a useful role in promoting the diffusion of these innovations. There is much to be done by way of bringing coordination and cohesion to the scattered elements of the diffusion effort and in bringing focus and purpose to the research efforts that are needed to enrich it.

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