

**Cross case analysis of how SME high technology firms in Canada
define performance management**

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ABSTRACT

This exploratory research compares how high technology firms use performance management strategies to gain a competitive advantage and, at the same time, investigates the role of human capital. The eight high technology firms selected for study are located in the Okanagan Valley region of British Columbia, Canada and each was pre-qualified as a small or medium-sized enterprise – two with 10 to 19 employees, four with 20 to 49, and two with 50 to 200. For this research, eight high technology case studies were constructed from interviews with the firms' managers. Cross-case analysis of the results examined how these SMEs define performance management and related processes. The findings indicated that these firms have a well-developed understanding of performance management but opportunities for executing strategies with this process are weaker. As well, those firms with human resource managers have a distinct employee focus, whereas those without emphasise firm performance.

Key words: Performance management, SMEs, high technology firms

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ABSTRACT

This exploratory research compares how high technology firms use performance management strategies to gain a competitive advantage and, at the same time, investigates the role of human capital. The eight high technology firms selected for the larger research project are located in the Okanagan Valley region of British Columbia, Canada and each was pre-qualified as a small or medium-sized enterprise – two with 10 to 19 employees, four with 20 to 49, and two with 50 to 200. The eight high technology case studies were constructed from interviews with the firms' managers. In this paper, cross-case analysis of the results examined how these SMEs define performance management and related processes. The findings indicated that these firms have a well-developed understanding of performance management but opportunities for executing strategies with this process are weaker. As well, those firms with human resource managers have a distinct employee focus, whereas those without emphasise firm performance.

INTRODUCTION

In Canada, the number of technology-based companies has doubled to 14,000 over the last five years, and the number is likely to grow to 20,000 by 2005 (Smith 2000, p. 37). Specifically, between 1999 and 2004, the employment forecast for mathematicians, systems analysts, and computer programmers is 11.3 percent; engineering positions represent another 4.5 percent. The first researcher's business experience with performance management processes in hierarchical multi-national corporations (MNC) influenced a larger investigation of performance management applications in growing small and medium enterprises (SME) for a doctoral dissertation. Although the potential benefits of a performance management strategy appear to be obvious for high technology firms seeking a competitive advantage through their people, readily available research within this sector was limited. Performance management is a strategic process potentially capable of directing human performance and arguably administered by human resource or line managers.

Within British Columbia, the total number of high technology establishments has grown from 5,021 to 5,389 (7.3%) between 1999 and 2003 (Schrier, Ni & Hallin 2003, p.48; Schrier, Hallin & Ni 2005, p.5). A local survey of 600 firms reveals that

between 1999 and 2003, 78 percent of RDCO businesses planned to increase their number of full-time employees and a further 47 percent their part-time staff. The high technology sector in the Okanagan Valley region (southern interior of BC) contains service and manufacturing industries. Despite periods of declining economic conditions, this sector still grew from 273 to 294 establishments between 1999 and 2003, which represents a 7.7 percent increase. As well, reputable firms identified in a 2001 regional study remained well established in a sequel 2003 study (*High tech study: and benchmark comparisons to May 2001 study* 2003). In 2003, the estimated revenue from Okanagan Valley technology firms was \$203 million (*Economic profile: Regional District of Central Okanagan* 2004). As of 2003, the number of employees reported by these firms revealed that 58 percent had five or fewer employees and 32.1 percent had between six and twenty employees. Six firms (7.4%) stated twenty-one to fifty employees and another two (2.5%) indicated over fifty (*High tech study* 2003, p.7). The majority of these firms are in software development, multimedia, or communication technologies (Calibre Strategic Services 2001).

PERFORMANCE MANAGEMENT

Rapid growth in the high technology sector provides an ideal platform from which to study PM strategies, their interrelationship with HR issues, and their predilection for gaining competitive advantages. Given that well-established high technology SMEs operate throughout the Okanagan Valley region (*High tech study* 2003) and that growth of these service and manufacturing industries are potentially critical to moving the Okanagan Valley region towards a value-added economy (ICF Consulting 2004), this is clearly a significant area for study. In this paper one research issue, namely the definition of performance management in a larger doctoral dissertation in Canadian SMEs is investigated.

Given the origins of the PM concept, its newer change management role, and the depth and scope of available descriptions, a working definition is advantageous for this research. Accordingly, the combined features of PM as well as critical elements of its appraisal component, provide a comprehensive foundation for a working definition. For the purposes of this study, then, PM is an ongoing process (Das & ed. Templer 2003), which:

- Integrates with business strategy development and execution,
- Develops individual and team performance,
- Focuses on training and development needs of employees,
- Includes a formal performance appraisal component,
- Emphasises line management accountability for its success, and
- Merges with the HR and reward management systems.

Although the working definition offers a framework for investigating PM strategies inherent in the research issue below, the understanding and application of PM concepts by growing high technology SMEs located in the Okanagan Valley is unknown. Consequently, one research issue (RI) that is selected for this paper from a larger study on how Canadian high technology SMEs use performance management strategies to gain a competitive advantage, is :

RI 1: How do high technology firms in the Okanagan Valley region define performance management?

The identification of PM variables and their interrelationship is desirable for this research. As such, the following segment begins with a review of twelve models developed from 1991 to 2003; it continues with a comparison of these models to the working definition developed in the first segment. This segment concludes by re-confirming the need for a definition of PM by high technology firms and a description of their competitive advantages.

One approach by Schneier, Shaw and Beattie (1991) details five critical factors necessary for performance measurement and management (PMM) and strategy execution: a) articulation of business strategy, b) identification of critical success factors or core competencies, c) development of performance measures that drive strategy execution, d) assignment of accountability which assures strategy execution, and e) alignment of structure, systems, skills, and style. According to the model, these recommended factors result in a competitive advantage for business.

In 1995, Sadler advanced PM as the prominent characteristic in his new HR agenda, which also declares a competitive advantage. In this model, PM, not only provides an opportunity for demonstrating the contribution of personnel to the bottom line, it also integrates appraisal, performance, and personal development. The key features of the cycle are as follows: a) recognition of work teams and their involvement in the

development of key performance areas and individual objectives, b) emphasis on agreed to, not imposed, objectives that individuals establish prior to discussions with their managers, and c) encouragement for a coaching role by managers. During the same year, Egan (1995) proposed three elements for a comprehensive PM and appraisal system: performance improvement, one or more formal appraisals, and a compensation discussion. In his description, performance improvement continues throughout all hours of the working year and, for this reason, needs a culture that encourages questions. In addition, the system is a line management, not an HR one, where both managers and employees are accountable for its use and improvement. His vision of PM is a value-added business system directed towards improved performance and results.

The following year, Kaplan and Norton (1996) proposed a new measurement system, a 'balanced scorecard', which promotes four assessment perspectives – financial, customer, internal, and innovation and learning. This new management system balances short- and long-term objectives, financial and nonfinancial measures, leading and lagging indicators, and internal and external performance perspectives. Its framework translates mission and strategy into performance measures; hence, its outcomes and drivers measure those properties that create competitive advantage. The senior management team develops the scorecard and, as such, the objectives become a joint accountability. In addition to strategy implementation, the 'balanced scorecard' concept facilitates monitoring, evaluation, and corrective action for executives, managers, and employees. As well, it fosters organisational change, isolates critical competencies and capabilities, and promotes organisational learning. 'The Balanced Scorecard is primarily a mechanism for strategy implementation, not for strategy formulation' (Kaplan & Norton 1996, p.38).

According to Perkins (1997), the best PM model for the post-industrial period is strategic and emphasises self-directed teamwork in a flat structure. In his proposed model, leadership and coaching replace the traditional forms of management. In addition, recognition and rewards facilitate the delivery of creative and intellectual knowledge and, subsequently, organisational success. The elements in this model are objective setting, monitoring and appraising. From a review of mainly US literature, Millett (1998) suggests that an ideal PM model has features that support:

- Communicating of objectives to all employees,
- Relating individual and departmental performance targets to a broader set of objectives,
- Reviewing formally progress towards these target objectives,
- Identifying training, development, and merit pay assessments, and
- Evaluating and improving the effectiveness of the process.

As well, Millett (1998) adds three dimensions to these identified features. Firstly, PM designs needs to include those factors necessary for individual and group performance. Secondly, strategies adopted in the context of PM must demonstrate how it maximises individual and group performance factors towards positive and significant outcomes, such as building human capital. Thirdly, performance appraisal strategies need to develop those communication channels necessary for managing the individual and group performance factors.

Following the turn of the century, a number of recommendations for enhancing PM processes appear. One approach by Pamerter (2000) advocates an output-based system with measurable objectives but with the major objective of *employee development* rather than a performance *report card*. Instead, PM becomes part of the reward program and renamed to *Employee Enhancement*. The new focus is on the recognition of those factors that have limited the employee's contribution and the implementation of an employee-manager contract aimed at improvement. For success, this approach requires contributions from both the manager and employee. The year following, Bain (2001) recommends co-performance appraisal and planning as the next evolutionary step in PM. This new paradigm promotes an employee-manager dyad where the manager's behaviour is integral to the performance expectations for employees. In addition to the employee's performance results, co-performance considers managerial support and dyad working relationship. That is, co-performance planning not only addresses individual results but also the coaching actions of managers. An important feature of this model is the importance of the *right* people in management positions.

The Cummings and Worley (2001) model is very comprehensive, and it illustrates PM within the context of business strategy, workplace technology, and employee involvement. The integrated process is comprised of goal setting, performance appraisal, and reward systems, which jointly influence individual and group performance.

Fletcher (2001), on the other hand, views PM as a widening of the performance appraisal concept, with a more strategic and integrating approach to HR and business policies. As well, the growing importance of team-based work and effective communication is making *contextual* performance relevant to organizations. Increasingly, the newer contextual performance, which focuses on competency-based and development-oriented appraisals, is replacing the traditional *task* performance, which concentrates on cognitive ability, skills, and experience. The concept makes a further distinction between learning goals and performance goals. The purpose of this article was to identify the themes and trends developing in research in terms of the nature and context of appraisal.

Boxall and Purcell (2003) begin with a theory of human performance to initiate a strategic approach to managing people. Their equation, which enlists features from other models, proposes that individual performance and development is a function of ability (a combination of declarative knowledge and procedural knowledge and skill), motivational elements, and contextual opportunity or environmental factors. PM, according to Das and edited by Templer (2003), is an ongoing process aimed at organisational success and is related to objectives and strategies. For high levels of performance, four components are necessary – planning, support, review and development. Overall, PM must be consistent with the organisation's culture.

A comparison of twelve PM models, to components in the working definition reveals a number of similarities (Refer to table 1). To begin, nine models either assume or specify that PM processes include business strategy. For articulating and, ultimately, executing strategy successfully, a number of them recognise specific strategic components, such as core competencies (Schneier, Shaw & Beattie 1991) or objectives (Kaplan & Norton 1996; Perkins 1997; Millett 1998; Cummings & Worley 2001; Das & ed. Templer 2003). The PMM model stresses the importance of aligning organisational strategy and capabilities such as structure, skills, and systems to ensure strategy execution (Schneier, Shaw & Beattie 1991). Four models endorse the development of performance measures (Schneier, Shaw & Beattie 1991; Sadler 1995; Kaplan & Norton 1996) or performance targets (Millett 1998; Das & ed. Templer 2003) for communicating performance expectations and attainment. All models focus on individuals and over 50 percent of these are clearly adaptable to team-based

organizations. Of significance, over 80 percent integrate PM with HR or reward systems, and 75 percent hold line managers accountable for the process. Finally, 75 percent of the models actively promote employee development and 67 percent include a formal appraisal component.

Table 1 Comparison of performance models to working definition

Models ↓	Working definition →	Integrates with strategy	Focuses on the individual & teams *	Promotes employee training	Includes appraisal module	Holds line managers in charge	Integrates with HR or reward systems
Schneier, Shaw & Beattie (1991)		✓	✓			✓	✓
Sadler (1995)		✓	✓*	✓	✓	✓	✓
Egan (1995)		✓	✓	✓	✓	✓	✓
Kaplan & Norton (1996)		✓	✓*	✓		✓	✓
Perkins (1997)		✓	✓*		✓	✓	✓
Millett (1998)		✓	✓	✓	✓	✓	✓
Pamenter (2000)			✓	✓		✓	✓
Bain (2001)			✓	✓	✓	✓	
Cummings & Worley (2001)		✓	✓*		✓		✓
Fletcher (2001)		✓	✓*	✓	✓		✓
Boxall & Purcell (2003)			✓*	✓		✓	
Das & ed. Templer (2003)		✓	✓*	✓	✓		✓

(Source: Price 2005).

A comparison of models with the working definition confirms several common variables. Of note is that 75 percent of the models are strategic in nature and three explicitly state that PM has the capability of offering a competitive advantage. Implicitly, all models symbolise the importance of human capital to PM outcomes. With the exception of Perkins (1997) and Boxall and Purcell (2003), the models are contextually generic in nature. The former model emphasises self-directed work teams and flat organisational structures and the latter opportunity and environmental factors. All models are silent regarding PM in SMEs and, specifically, growing high technology SMEs.

As such, an investigation of the use of PM strategies for gaining a competitive advantage in the high technology sector necessitates a definition of PM by these firms.

METHOD

A qualitative research design requires the definition of the unit of analysis, plus decisions about the sample size and sampling strategies. For this investigation, the unit of analysis was the high technology firm with twenty or more employees and located in the Okanagan Valley region. The collection of data, however, was at the managerial level – executives, line managers, and HR managers or designates. A number of criteria formed the decision making for case acceptance or rejection in this study namely a) geographical proximity – each firm was located in Okanagan Valley region, b) firm size (20 or more employees) since line managers implement PM processes, c) given the research questions, selection considered whether the case was typical or representative of growing high technology firms (Miles & Huberman 1994), d) maximizing the learning necessary for understanding PM processes and their potential for creating a competitive advantage (Miles & Huberman 1994; Stake 1995), e) willingness of firms and motivations of their managers to contribute to the study and f) the first researcher’s resources of time and finances were limiting constraints.

Given the decision criteria and the sampling parameters, there were eight high technology firms selected from the Okanagan Valley region. Within each firm, two to four executive or line managers were qualified from a variety of positions and, where available, the selections included an HR manager or designate to represent the HR function. The types of firms that met the criteria were from high technology manufacturing, software, and internet marketing. Table 2 provides details of the pre-qualified case study sample accepted for this research.

Table 2 Pre-qualified high technology case sample

Case	Type	Size	Managerial role
1	Software	20 to 49 employees	<ul style="list-style-type: none"> ▪ 1 executive ▪ 3 line managers ▪ 1 part-time human resource manager
2	Internet marketing	20 to 49 employees	<ul style="list-style-type: none"> ▪ 1 executive ▪ 3 line managers ▪ 1 human resource designate

3	Software	20 to 49 employees	<ul style="list-style-type: none"> ▪ 1 executive ▪ 3 line managers ▪ 1 human resource designate
4	Manufacturing	10 to 19 employees	<ul style="list-style-type: none"> ▪ 2 executives ▪ 2 line managers
5	Manufacturing	50 plus employees	<ul style="list-style-type: none"> ▪ 1 executive ▪ 3 line managers ▪ 1 human resource manager
6	Software	50 plus employees	<ul style="list-style-type: none"> ▪ 2 line managers ▪ 1 human resource manager
7	Software	10 to 19 employees	<ul style="list-style-type: none"> ▪ 1 executive ▪ 1 line manager
8	Software	20 to 49 employees	<ul style="list-style-type: none"> ▪ 2 executives ▪ 2 line managers ▪ 1 human resource designate

(Source: Price 2005)

An interview protocol was developed in conjunction with the second author to clarify any theoretical assumptions and to enrich the meaning and reality of the research. The protocol contains the following seven-stage interview investigation: thematising, designing, interviewing, transcribing, analysing, verifying and reporting (Kvale 1996). To begin, a protocol plan detailed the general procedures adhered to for each case study – the initial pilot case study and seven subsequent research cases. A telephone call to the owner or general manager was the first contact with each high technology firm; at this time, arrangements for an initial field visit included confirmation of a suitable time and location. Before commencing the interview, the first researcher re-introduced each participant to the purpose for the study and apprised them of ethical issues. In addition, a brief firm survey captured other relevant and confirming information for this study. A case study database warehouses the collected evidence from interviewees and other sources of information (Yin 1994). Data reduction occurred throughout data preparation, individual firm analysis, and cross-case analyses; it demanded critical choices such as which data to code, which information to eliminate, and which patterns to select (Miles & Huberman 1994).

Cross-case analysis: Once each single-case was analysed thoroughly, cross-case techniques commenced the analysis of PM processes and behaviours for patterns and themes in common. The aim of multiple case analyses is to distinguish the processes and outcomes across many cases and to expand the understanding of similarities and differences across cases. Further, multi-comparisons highlight the particular

conditions and generic processes required for explaining how situations are related (Miles & Huberman 1994).

In this study, the strategy employed for cross-case analysis was a mixed one, which combined variable-oriented and case-oriented analyses (Miles & Huberman 1994). The variable-oriented strategy compared each of the firm cases with the variables identified in the strategic PM conceptual framework, whereas, the case-oriented strategy focused on patterns that were specific, concrete, and historically-grounded, as well as common to more than one of the eight cases. The latter necessitated the synthesis of interpretations across the cases. Each firm's background survey permitted the comparison of similar as well as dissimilar structural, employee, and other contextual firm factors. As well, the in-depth single-case findings supported extensive cross-case analyses for each research issue under investigation. All of this comparative data offered excellent opportunities for extensive use of tables and figures for analyses purposes.

Since each case was previously analysed in depth, the information was readily available for the creation of meta-matrices or stacked case-level charts (Miles & Huberman 1994). The next step was to reduce the amount of data by using the common categories, displays, and reporting formats from each single case. That is, partitioning and clustering the single-case data refined, summarised, and reduced the information. Both within-category sorting and across-category clustering resulted in focused and integrative findings. Finally, the similarities and differences associated with firm size, firm growth, and other contextual data developed a clearer understanding of the use of PM strategies for gaining a competitive advantage.

Throughout the data collection and data analysis processes, the researcher attempted to understand the meaning of the information. This interaction of conclusion drawing on the data reduction and display components necessitated continual verification and testing of the data and their meaning (Miles & Huberman 1994).

RESULTS

1 Initiation of performance management process

Determining the reasons that prompted the firms' interests in PM or some of its elements is significant to uncovering their perceptions of PM processes. This segment discusses why the firms' processes or elements were initiated and by whom.

Cross-case analysis – Comparison of reasons for initiating performance management

Among the eight case studies analysed, four identify growth in employee or business numbers as major influencing factors for investigating PM processes. In addition to growth, other motives and symptoms of growth prompted action in initiating formal PM processes, as outlined in Table 3.

Table 3 Why performance management processes initiated

Case studies →	1	2	3	4	5	6	7	8
Why ↓								
Employee performance	■		■	■	■		■	■
Financial/operating performance	■	■						■
Sales/marketing opportunities				■			■	
Employee recognition				■		■		
Incentive pay/profit-sharing		■			■			
Customer satisfaction		■	■	■				■
Communication		■	■			■		
Teamwork		■	■			■		
Companywide consistency	■				■			
Structured assessments	■							
Formal reporting mechanism	■							
Strategic focus	■							
Leadership development						■		

(Source: Price 2005)

An analysis of table 3 clearly points to a number of similar reasons for initiating PM processes. The most frequent is employee performance, but, when viewed collectively, the financial/operating and sales/ marketing rankings place firm performance in second position. Other shared purposes include employee reward systems, when employee recognition and incentive pay are viewed collectively, and customer satisfaction. Otherwise, the reasons for initiating PM are relatively unique to each case study. For example, the two large firms (Cases 5 and 6) report very

specific reasons for implementing or enhancing their PM processes – profit sharing and leadership development.

There are also similarities and differences in who initiated the process, or elements of the process, and who developed it. Table 4 compares who initiated the cases' processes and who developed them. Whether the processes or the elements are formal or informal, line managers were the primary implementers in all case studies.

Table 4 Who initiated and developed performance management

Case studies →	1	2	3	4	5	6	7	8
Individual(s) ↓	I = initiator D = developer R = recommender							
CEO or other executives		I	I		I	I		I
Line managers	I*	D	D	I/D			I/D	D
Employees	I					I		
Formal committee	D							
HR Manager or designate	I*	D			D	D		
Consultant			D		R	D		

* HR plus line managers are members of formal PM committee.

(Source: Price 2005)

Who introduced the PM processes varies among the cases, but, in five of the eight, executives initiate the process and, in Case 6, in conjunction with employee feedback. In Case 1 the process was initiated from the bottom-up by line and HR managers as well as employees. In the two small cases (4 and 7), formal elements were introduced by line managers and, specifically, sales managers.

Development of PM processes, on the other hand, appears to be dependent on whether the case has an HR position or not. Both large firms employ full-time HR specialists, who were the designers, and both firms contracted consultants but at different stages in the process; Case 1 has a part-time HR specialist who is a member of the firm's PM committee. In the remaining five cases, line managers are responsible for developing the process and, in one case, with the assistance of an HR designate. These initiators and developers of the firms' processes potentially influence the objectives and, subsequently, the more formal components or elements of the firms' PM processes.

2 Objectives of performance management process

Another important characteristic for determining the firms' definitions of PM is a review of their objectives.

Cross-case analysis – Comparison of performance management objectives

The committee members in Case 1 shared the greatest degree of commonality when expressing their firm's PM objectives. Nevertheless, consistency among the managers in five of the other cases was also very evident. On occasion, executive members or HR managers added one or two objectives. A comparison of the similarities and differences in objectives are outlined in table 5.

An initial analysis of table 3 suggests few similarities in their objectives for PM processes. The only exception appears to be the strong common objective for *employee development*, which is shared by seven of the eight cases. Nevertheless, when the objectives are clustered into broader categories, more commonality becomes apparent. For example, when the objectives are grouped together under 'reward systems' or 'business performance' clusters, six firms share a similar focus. Likewise, clusters result in greater similarity among the cases for other PM objectives, such as employee performance, customer satisfaction, and communication.

Table 5 Comparison of performance management objectives

Case studies →	1	2	3	4	5	6	7	8
Objectives ↓								
Development cluster (7 cases)								
Identify training, development, and behavioural needs	■	■		■	■	■	■	■
Develop leaders						■		
Reward systems cluster (6 cases)								
Correlate performance with compensation increases	■	■		■	■			
Recognise goods behaviour and exceptional performance			■		■			
Enhance job satisfaction and employee motivation			■				■	
Ensure employees 'enjoy coming to work'				■				
Business performance cluster (6 cases)								
Align employees with corporate values, goals or plans	■	■						
Implement a method for 'checks and balances'		■						
Track organisational growth plans								

Identify problematic management and other processes							■		
Assist with corporate and marketing decisions								■	
Monitor and analyse firm's goal variances									■
Increase number and diversity of client base									■
Employee performance cluster (5 cases)									
Stimulate employee accountability	■		■						
Evaluate employee performance						■	■		
Determine probationary employee's suitability					■				
Customer satisfaction cluster (4 cases)									
Meet customer expectations and satisfaction		■	■			■			■
Communication cluster (4 cases)									
Communicate employee-employer expectations				■					■
Provide feedback to employees						■	■		
Align job responsibilities with job expectations				■					
Work collaboratively with employees							■		

Table 5 continued

	Case studies →							
	1	2	3	4	5	6	7	8
Objectives ↓								
Miscellaneous cluster								
Develop a process that demonstrates value/investment	■	■						■
Encourage teams' and members' expectations			■					■
Identify candidates for promotional/career opportunities					■	■		
Aspire to be 'best employer'	■							
Enhance firm's software offerings	■							
Minimize team and employee stress levels			■					
Retain well qualified employees			■					
Maintain legal documentation					■			
Assure standardization and consistency					■			

(Source: Price 2005)

Dissimilarities among the cases' objectives are also more evident with clustering. For example, within the miscellaneous cluster, the two large firms (cases 5 and 6) are distinguished from the others by their introduction of promotional or career objectives for their PM processes. Variations in the teamwork and miscellaneous clusters present relatively unique objectives, which are specific to individual cases.

A comparison between the cases' reasons for pursuing PM processes and their clusters of objectives reveals that all followed their initial purpose to some extent. Table 6 compares the firms' reasons for initiating PM processes with the PM objectives documented in the case studies.

Table 6 reveals that both firm performance and employee performance initiatives are addressed in the objectives of four and five cases respectively. Further, of the four cases that initiated PM processes for employee rewards, three translate this purpose into their objectives, and three additional firms have added this objective to their portfolios.

The most striking difference between the initial reasons for implementing PM processes and the resulting objectives is the *inclusion of development objectives* by six additional firms. Other dissimilarities are evident in the miscellaneous cluster, where objectives added to the cases' portfolios are frequently unique to their needs.

Table 6 Reasons for initiating performance management in comparison to the objectives for the process

Reason initiated (# cases)	Cluster of objectives (# cases)	Cases with match
Employee performance (6 cases)	Employee performance (6 cases)	1, 3, 5 & 7
Firm performance* (6 cases)	Business performance (5 cases)	1, 2, 4, 7 & 8
Employee reward systems** (4 cases)	Reward systems (6 cases)	2, 4 & 5
Customer satisfaction (4 cases)	Customer satisfaction (4 cases)	2, 3 & 8
Communication (3 cases)	Communication (4 cases)	6
Teamwork (3 cases)	Teamwork (2 cases)	3
Leadership development (1 case)	Development (7 cases)	6
Other reasons (3 cases)	Miscellaneous (6 cases)	5 (consistency)

* A combination of financial/operating and sales/marketing performance reasons for implementing.
 ** A combination of employee recognition and incentive pay reasons for implementing.

(Source: Price 2005)

3 Performance management components

The PM components and elements implemented by each firm are a strong reflection of its definition because, whether formal or informal, they represent the actions that a firm is willing to assume.

Cross-case analysis – Comparison of performance management components

Among the eight high technology firms, there are a number of implemented formal components as well as informal elements that constitute their PM processes. An initial analysis of case study processes reveals that the strongest similarity among them is the existence of a *formal appraisal component*, and the largest difference is the *presence or absence of a strategic focus*. Table 7, however, expands on similarities and differences evident among the cases' PM components.

Table 7. Comparisons of performance management components

Case studies →	1	2	3	4	5	6	7	8
Components ↓								
Formal appraisals – table 4.5(b)	■	■	■		■	■		■
Informal appraisals of results			■	■			■	
Individual goals/outcomes	■	■		■	■	■		■
Corporate objectives/goals	■	■			■	■		■
Business plans				■			■	
Performance/tracking metrics			■	■				
Job descriptions/accountabilities		■	■		■	■		■
Competencies/demonstrated behaviours	■				■	■		
Training and development/education	■	■	■		■	■		
Incentive bonuses/profit-sharing	■				■			■
Compensation increases								■
Team-orientation	■	■	■	■				■
Strategic focus	■							

(Source: Price 2005)

Five of the cases' PM processes assess individual goals that cascade either formally or informally from corporate goals, and the remaining three develop individual goals from business plans or predetermined measures. With the exception of the two small cases (4 and 7), the PM processes also contain job responsibilities, defined attributes,

competencies, or expected behaviours. Only the two large cases (5 and 6), however, assess both job responsibilities and behaviours as part of their formal appraisal processes.

Further analysis confirms that the case studies continue to support their development and reward-systems objectives. Five describe formal components for training and development or education. This component is similar in that the case studies reveal a ‘needs identification’ focus, but it differs in ‘committed investment’, which varies from fully-documented development plans to self-development initiatives. From a reward-systems perspective, three cases formally factor performance results into their annual or incentive compensation decisions.

There are differences in the degree of formality and extent of coverage within the components identified by table 8. For example, the formal performance appraisal component, shows that five of the six programs are companywide but only two apply to both managers and employees.

Table 8 Comparison of formal performance appraisal components

CASE STUDY #							
1	2	3	4	5	6	7	8
Implemented formal elements (I-P = in-process)							
Firm wide	Firm wide	Sales only	Sales I-P	Firm wide	Firm wide	Sales I-P	Firm wide
Formal review sessions apply to							
Employees	Employees	Sales reps.	Employees	Employees	Managers Employees	Employees	Managers Employees
Feedback received from							
Manager/ supervisor	Manager/ supervisor HR rep. Self	Manager/ supervisor Self	Manager/ supervisor Peers Self	Manager/ supervisor Self	Manager/ supervisor Peers Self	Manager/ supervisor Self	Manager/ supervisor Peers Clients Self
Main focus							
Development	Improvement	Feedback	(Feedback)	Profit-sharing	Development	(Feedback)	Expectations
Elements evaluated							
Objectives Behaviour Team focus	Responsibility Goals Team focus	Job desc. Sales	Objectives	Responsibility Objectives Results Behaviour	Responsibility Objectives Behaviour T&D plans	Expectations	Objectives Attributes Team focus
Review frequency (F = formal)							
Quarterly Annual (F)	Quarterly Annual (F)	Quarterly Annual (F)	Ad hoc	Probation Quarterly Annual (F)	Semi- Annual (F)	Ad hoc	Probation Quarterly Annual (F)
Rating-scale used							

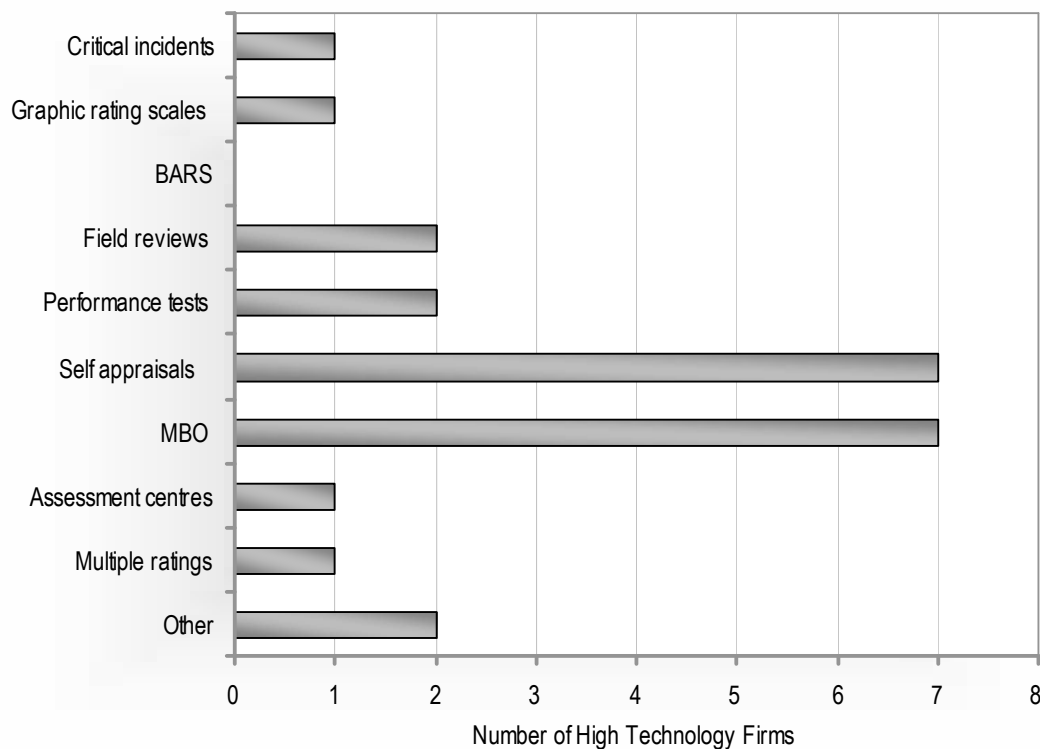
4-point				5-point	Total 100	3-levels	4-point
Formal integration with compensation package							
Individual incentives				Profit-sharing			Annual inc. Incentives
Timing of reviews							
Date of hire Appointment	Date of hire			Calendar			

(Source: Price 2005)

Further, the elements evaluated during formal review sessions vary among the cases, and the extent of team focus differs among them as well. Six of the cases conduct quarterly or semi-annual and formal annual appraisals; not surprisingly, the smallest cases are able to manage with ad hoc reviews.

Whether the appraisal sessions reported in table 8 are formal or informal, all cases communicate the use of several popular assessment tools. As displayed in figure 1, Management by Objectives (*MBO*) and *self-appraisals* are, by far, the most frequently implemented. The popularity of MBO among the cases is consistent with their commonly reported PM component, individual goal-setting, but the assessment tool appears to be lacking in its full-potential, judging from the relative absence of strategic components reflected in table 5.

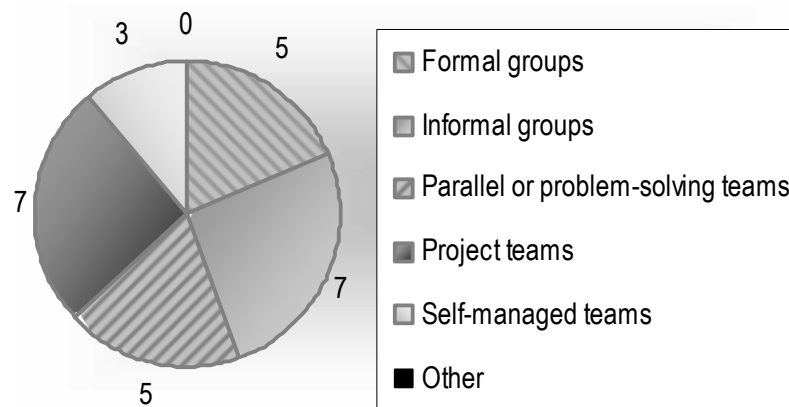
Figure 1 Types of assessment tools implemented by firms



(Source: Price 2005)

Finally, five of the case studies suggest a shift towards team-oriented PM processes and, as a result, either review employee contribution to team results or measure team output. All of the firms' surveys confirm that work teams are highly relevant and that each employs various types of team configurations, as displayed in figure 2.

Figure 2 Types work teams and frequency of use by firms



(Source: Price 2005)

The types of work teams most frequently reported by the eight cases are project teams and informal groups. The next most common types are problem-solving and formal group structures.

4 Significant issues and enhancement plans

In addition to the components already identified, many of the firms have plans for introducing new or enhancing existing components or elements. These too are a reflection of the firms' definitions of PM.

Cross-case analysis – Comparison of planned enhancements

The addition of enhancements provides a more comprehensive picture of how technology firms define PM. When the planned PM components are added to the existing ones in table 8, the similarities among the cases increase but the lack of a strategic focus remains. Table 9 contains a comparison of the cases' existing and planned components.

Table 9 Comparison of existing and planned components

Case study →	1	2	3	4	5	6	7	8
Performance management components ↓								
Formal appraisals – table 4.5(b)	Existing	Existing	Existing	Planned	Existing	Existing	Existing	Existing
Informal appraisals of results	Planned	Planned	Existing	Existing	Planned	Planned	Existing	Planned
Individual goals/outcomes	Existing	Existing	Planned	Existing	Existing	Existing	Existing	Existing
Corporate objectives/goals	Existing	Existing	Planned	Planned	Existing	Existing	Planned	Existing
Business plans	Planned	Planned	Planned	Existing	Planned	Planned	Existing	Planned
Performance/tracking metrics	Planned	Existing	Existing	Existing	Planned	Planned	Planned	Existing
Job descriptions/accountabilities	Planned	Existing	Existing	Planned	Existing	Existing	Existing	Existing
Competencies/demonstrated behaviours	Existing	Planned	Existing	Planned	Existing	Existing	Planned	Existing
Training and development/education	Existing	Existing	Existing	Existing	Existing	Existing	Planned	Planned
Individual incentives/profit-sharing	Existing	Existing	Existing	Planned	Existing	Planned	Planned	Existing
Team-based incentives	Existing	Planned	Planned	Planned	Planned	Planned	Planned	Existing
Compensation increases	Planned	Planned	Existing	Planned	Planned	Planned	Planned	Existing
Team-orientation	Existing	Existing	Existing	Existing	Existing	Planned	Planned	Existing
Strategic focus	Existing	Planned	Planned	Planned	Planned	Existing	Planned	Planned

Key: Existing  Planned 

(Source: Price 2005)

Table 9 reveals that the definitions of PM, when viewed through existing components and enhancements, are very similar among the eight case studies. Seven of the cases implement *formal appraisal programs* either companywide or within one department and the eighth firm is implementing companywide software that facilitates performance self-monitoring. Further, the case enhancements show an *increase in support for individual goals* and additional *companywide tracking metrics*. Several of the case studies express, to varying degrees, interest in implementing BSC metrics. Three cases indicate plans to introduce new or to expand existing incentive programs, which brings the total to five cases. Other planned enhancements focus on the mechanics of the PM process or its appraisal component. For example, greater interest in the tracking or evaluation of training and development programs is expressed in a number of cases.

Unlike table 8, the firms' planned enhancements in table 9 introduce a new component – team-based incentives. On one hand, these team rewards have the

potential to change the focus of PM for two of the cases, and, on the other, they represent a greater divide between one-quarter of the cases and the other three-quarters. Although the strategic component remains a major difference among the cases, the need for strategic integration is recognised by two cases in table 9 in comparison to only one in table 8. A strategic focus to PM processes is, however, an apparent anomaly as five firm surveys record that their PM processes integrate with their business strategies, as displayed in figure 3.

Figure 3 Extent of performance management implementation by firms



(Source: Price 2005)

DISCUSSION

Initiation of performance management process

At the outset, business growth often inspires the need for PM processes by high technology firms. As firms grow, they initiate PM either to measure employee performance or to track firm performance. Other shared purposes include employee reward systems and customer satisfaction. The two large firms (cases 5 and 6), each of which has an HR Manager, report very specific reasons for implementing or enhancing their PM processes – profit-sharing and leadership development.

Why these processes are initiated is often influenced by who instigates them. Executives are the initiators of formal PM processes in over 60 percent of the cases.

In all of them, the need for PM processes was identified by either executives or line managers. In the two small firms (cases 4 and 7), for example, the formal components were introduced by their sales managers. The development of PM processes also varies among the cases. The full-time HR managers in the two large firms are fully responsible for development, and the part-time HR manager in the mid-sized firm is a member of the firm's PM Committee, which is developing the process. Otherwise, line managers have been responsible for developing the PM processes. Two of the eight firms had consultants assisting with development of their processes – one with and one without an HR manager.

The reasons for initiating PM processes are clear in the literature. To begin, firms that focus on the managing and rewarding of performance outperform those that do not (McDonald & Smith 1995; Parker & Brown 2000). Further, PM systems facilitate a companywide performance culture (Schneier, Shaw & Beattie 1991). Similarly, the case findings confirm that the primary reasons for implementing PM processes are to measure employee performance or to track firm performance.

Who initiates the process in this research varies somewhat with the results of other similar studies in literature. Brown (2002) asserts that business leaders view PM as an HR initiative, and, too often, PM is not the accountability of managers (Egan 1995; Henry & Bradley 1997; Schneier, Shaw & Beattie 1991). In comparison, the cross-case findings indicate that PM initiatives are most often instituted by an executive and, in all cases, implemented by line managers who are held accountable.

Some of the findings are similar to the literature for the development of PM processes. Henry and Bradley (1997) report that once top management decides that a performance review system is a good idea, it is allocated to the HR department; further, the design and evaluation of programs becomes the purview of the HR manager (Egan 1995). In each of the large cases, the responsibility for PM development was assigned solely to the HR manager.

The literature varies from the case studies with respect to employee participation. That is, McDonald and Smith (1995) associate employee involvement with effective PM (McDonald & Smith 1995), because committed employees are more likely to make contributions to the firm's success (Davis & Landa 1999). In comparison,

although two case findings credit employees with co-initiating their processes, there is no evidence of employees taking part in the development of the firms' PM processes.

In conclusion, growth initially drives the need for systems that track and measure performance, because high technology firms interested in success need a performance culture to outperform their competition. In all cases, either executives or line managers recognise the need for formal systems. During the early stages of growth, line managers are involved in PM development, but, with the advent of an HR manager, the program development shifts. In these high technology cases, accountability for PM implementation is firmly the role of line managers, which is not consistent with the literature. One obvious gap between the literature and the case findings is the total lack of employee involvement in the development of the firms' PM processes.

Objectives of performance management process

PM objectives are more similarly expressed by case participants when they are members of a committee; nevertheless, common objectives among managers are evident in three-quarters of the cases. Among the cases themselves, the similarity of objectives is more apparent when they are clustered into broader categories. That is, in addition to the employee development cluster, which is strongly shared among the cases, other desired results include: reward systems, business performance, employee performance, customer satisfaction, and communication. The uniqueness of objectives, among the cases, is more apparent within each cluster and, in particular, within the miscellaneous cluster. For example, only the two large firms are distinguished by their introduction of promotional or career objectives.

Although few sources of literature document specific objectives for PM, a number espouse its benefits. Similar to the expectations of case managers in this research, literature sources identify employee and team development, motivational opportunities, employee and firm performance growth, and increased communication as advantages of PM or its appraisal component (see Millett 1998; Stewart et al. 2001). Further, both existing PM models and current high technology applications stress the importance of employee development for building skill sets (Pamenter 2000), tracking firm performance (Elsdon & Iyer 1999), and lowering turnover rates (Dobbs 1999). One PM model makes a further distinction between learning goals and

performance goals (Fletcher 2001), which is very similar to the approach taken by Case 8. One notable difference from literature is the lack of attention to teamwork by three-quarters of the cases' objectives. Teamwork development is identified by Millett (1998) and Stewart et al. (2001) as a benefit for PM processes. This finding again confirms the lack of employee involvement that emerged previously.

The findings confirm that the objectives in each case study generally match their reasons for initiating a PM process. All five cases that introduced their processes to track firm performance translated this reason into a PM objective. Further, 50 percent of the cases authenticated employee performance as reasons for initiating and as objectives for the process, and, over a third, captured both reward systems and customer satisfaction as reasons for initiating and as objectives for the process. Otherwise, objectives have been added during the design or implementation stages, such as business performance, employee performance, reward systems, and customer satisfaction.

The two large cases (5 and 6) exhibit a strong linkage between the reasons for initiating their PM processes and their objectives for them. Further, their reasons and objectives are consistent with more recent PM models. That is, in Case 5, the decision to link profit-sharing bonuses to employees' salary levels and performance results is fully consistent with the approach recommended by Pamerter (2000), which recommends PM as part of a firm's reward program. The leadership focus in Case 6 is also supported by the new paradigm proposed by Bain (2001), which promotes co-performance where coaching behaviour of managers is integral to expected results for employees. Pamerter (2000) also requires contributions from both managers and employees.

The most striking difference between initial reasons for implementing PM processes and the resulting objectives is the addition of a development objective by seven of the eight cases. This added attention to employee development removes a potential PM liability identified by the literature. That is, if development is not valued by a firm, PM cannot operate effectively (Egan 1995).

In conclusion, PM objectives are consistently communicated by participants within each case and, when clustered by subject, are reasonably common among the high

technology cases. Within each cluster of objectives, however, each case has a more customized set of objectives. Whether formally or informally introduced, why PM is initiated generally informs the type of objectives that are determined for the program; other objectives, however, are added at the onset or during implementation. To some extent, PM processes shift from a firm and employee performance focus, when initiated, to employee development and reward systems emphases, which is more in line with the implied benefits in the literature.

Components of performance management process

The component that occurs the most often among the cases is the existence of a formal appraisal. Nevertheless, the cases exhibit other similarities among components of the PM process as well. First, individual goals cascade from corporate goals or are developed from business plans or measures. Second, three-quarters of the cases include all or some of the following elements in their formal PM components: job responsibilities, competencies, expected behaviours or attributes. The two large cases measure all of these elements, and the two small ones do not use any of them. Third, the implemented components confirm support for the development and reward-systems objectives, in five and three cases respectively.

According to the literature, it is not unusual that an appraisal component is the strongest component among the case studies. Many systems focus on this appraisal element (Stewart et al. 2001). Further, the need for job criteria (responsibilities, competencies, behaviours or attributes), on which to base performance, is also acknowledged (Heneman & Thomas 1997; Millett 1998; Pamenter 2000). Several current PM models recognise the importance of development and reward systems, which is consistent with the general direction of the large and mid-sized cases. In two models, rewards are recognised for influencing intellectual capital (Perkins 1997) and individual and team performance (Cummings & Worley 1997).

The most obvious difference among the cases is the presence or absence of a strategic focus. Nevertheless, distinct differences also exist among the cases in the depth and breadth of their components. For example, the formal appraisal component is evident in six cases, but it is only companywide in five of them. Further, formal reviews only apply to both managers and employees in two of the five-companywide programs.

Another example is the training and development component identified in five cases; all consistently focus on needs identification but vary substantially in investment. From a reward-systems perspective, three cases formally integrate their performance and compensation processes, whereas the others consider employee performance more informally in their compensation decisions.

From a strategic perspective, the case studies differ from each other and with many literature sources. For example, PM is defined as a process that is consistent with a firm's mission and objectives (Heneman & Thomas 1997; Henry & Bradley 1997; Stewart et al. 2001) and, as well, as a strategy (Armstrong & Baron 1998; Millett 1998; Perkins 1997). By comparison, only one case study specifically references a strategic focus.

The case study differences in the depth and breadth of PM components is potentially explained by their diversity in culture, size and structure, among other factors (Armstrong & Baron 1998; Fletcher 2001; Henry & Bradley 1997; Moravec 1996; Stewart et al. 2001). Further, many authors advocate custom PM processes (Armstrong & Baron 1998; Henry & Bradley 1997; Moravec 1996) for meeting changes in competition and customers' expectations. The case differences in depth and breadth are potentially clarified by a custom approach. For example, Perkins' (1997) model assigns more emphasis to leadership and coaching and recognition and rewards than other models. Yet, the elements of this model are very similar to those of the Case 6, which has a leadership development emphasis, and dissimilar to the other seven case studies.

Whether appraisal sessions are formal or informal, the most common assessment tools reported by the firms are management-by-objectives (MBO) and self-appraisals. The relevance of work teams to the high technology firms accounts for the gradual shift towards team-oriented PM processes reported by five cases.

It is not surprising that seven cases use MBO as a preferred assessment tool. The literature confirms that MBO remains popular (Kennedy 2001) and promotes a common understanding of expectations (Kennedy & Dresser 2001). The more recent trend towards multiple-rating appraisal programs includes, among other sources, self-appraisals as part of the 'full circle' (Belcourt & McBey 2004). The growing

popularity of 360-degree and other forms of multi-rating assessments is one explanation for the emphasis on self-appraisals reported by seven of the firms. Of these firms, four report three or more sources of feedback. The firms' greater awareness of and interest in team feedback is consistent with one of the opportunities afforded by PM processes (Millett 1998; Stewart et al. 2001).

In conclusion, the components implemented in the eight case studies confirm awareness and knowledge of PM processes similar to the working definition developed for this study. The most questionable component is the lack of apparent interest in a strategic focus. At this point, it is unclear whether the omission results from a narrower definition of PM processes or a weak strategic planning process. Nevertheless, all of the firms associate PM with business planning and, in three-quarters of the cases, integrate individual goals with corporate or departmental objectives. Although the two large cases, both of which have HR managers, integrate goal-setting measures into their PM processes, the components are directed more towards employee performance rather than firm performance.

5.2.1 Planned enhancements for performance management process

When process enhancements are added to the existing components, the similarities increase, and the largest difference (presence or absence of a strategic focus) remains. When the cases' plans are factored into their definition of PM, the following changes are evident. Seven cases report formal appraisal programs, either companywide or within a department, and the eighth firm is in the process of implementing companywide software that facilitates self-monitoring. Further, more support for individual goals and more formal companywide tracking systems are reported. One or more line managers, in 50 percent of the cases, expressed interest in Balanced Scorecard (BSC) metrics. Three firms plan to introduce or expand their incentive bonus programs, which increases the number of firms from two to five. One firm plans to introduce a new component, namely team-based incentives.

The PM enhancements planned in the case studies are supported by the literature sources used to develop the working definition for this study and to test the definition against current PM models. The interest in BSC metrics indicates a broader approach to measuring goals and objectives.

In summary, the enhancements planned for the firms' PM processes add greater substance to their existing components.

Conclusions about RI 1: Definition of performance management

Except for the strategic management component, the evidence in all case studies supports a well-developed understanding of PM by high technology firms in the Okanagan Valley region. Large firms, with HR managers, have a more distinct employee focus than the others, such as incentive bonus plans or employee and leadership development. Mid-sized firms tend to have a stronger emphasis on firm performance, with some employee needs identification but less investment in training. PM processes in small firms tend to be informal. The major omission in all case findings is the lack of attention and integration of PM processes with strategic business planning.

As a firm grows, the need to communicate more effectively creates a need to measure and track firm and employee performance. As a result, the reasons that firms initiate their PM processes inform their objectives, their components, and their planned enhancements. Why PM is initiated also accounts for the customization of PM processes that is apparent in the case studies. Generally, small-sized firms confront fewer communication needs during the early stages of growth and, as such, their sales managers who are responsible for generating revenue and managing remote employees usually initiate the PM processes. The large-sized firms, with HR Managers, appear to have a complete PM plan from beginning to end, prior to implementation of their processes.

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