

Performance Management Design and Effectiveness in Quality-Driven Organizations

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Abstract

Performance management practices, such as performance appraisals, are often considered incompatible with the principles of quality management. If designed appropriately, however, performance management systems could support rather than hinder quality. This study investigates the alignments of performance management system components to a strategic emphasis on quality. Findings from a sample of 312 organizations generally support the idea that organizations are adapting their performance management systems in ways that are compatible with a quality emphasis. In addition, the study shows that a greater alignment of quality and performance management is associated with greater perceived effectiveness of the performance management system.

Résumé

Les pratiques de gestion du rendement, comme les évaluations du rendement, sont souvent considérées incompatibles avec les principes de la gestion de la qualité. Cependant, si elles sont développées correctement, les systèmes de gestion du rendement peuvent soutenir plutôt que nuire à la qualité. La présente étude s'intéresse aux alignements entre les composantes des systèmes de gestion du rendement et l'emphase stratégique sur la qualité. Les analyses réalisées avec un échantillon de 312 organisations indiquent une certaine cohérence entre les systèmes de gestion du rendement et l'emphase stratégique sur la qualité. Les organisations semblent donc adapter leurs systèmes de gestion du rendement aux exigences de la qualité. De plus, une plus grande cohérence entre la stratégie qualité et la gestion du rendement est associée avec des perceptions positives à l'égard de l'efficacité du système de gestion du rendement.

Quality efforts fail to deliver superior results because the only thing that has changed about quality is the way we talk about it. Everything else has remained the same. (Daniels, 2000, p. 127)

Organizations increasingly view performance management as a key system that can promote and sustain initiatives such as speed to market, business processes renewal, and quality management. By aligning performance expectations, feedback, and reward systems to people requirements, performance management may

foster employee behaviours that are consistent with emerging business opportunities and the need for strategic and operational effectiveness. This greater emphasis on managerial purpose makes performance management a powerful tool for organizational change and quality improvement.

Deming (1986) and others (Bowman, 1994; Scholtes, 1993) argue, however, that the practice of performance management, including performance appraisal, is not compatible with the principles of quality management. Their main contention is that performance management is too focused on individual characteristics rather than on system factors. As such, the quality perspective questions the emphasis on individu-

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als rather than on aspects of work systems as being relevant to work performance (Waldman, 1994b). In response to Deming's admonition, a number of scholars countered that traditional performance management practices could be customized to support quality (e.g., Armstrong & Baron, 1998; Bowen & Waldman, 1999; Cardy, 1998; Cardy, Dobbins, & Carson, 1995; Ghorpade & Chen, 1995; Graber, Breisch, & Breisch, 1995; Masterson & Taylor, 1996). The debate resulted in several prescriptions for adapting performance management system components to the people requirements of quality. Whether or not this abundant advice resulted in new performance management configurations in quality-driven organizations remains largely unknown as scholarly work was directed more at developing conceptually appealing alignments than at validating them.

Drawing from contingency and strategic human resource management theorizing, this study explores a special case of strategic fit that is widely debated but seldom tested. Specifically, we examine whether a quality emphasis, defined as a strategy that focuses on continuous improvement to product reliability and customer satisfaction, is associated with the adoption of performance management configurations relating to performance criteria, appraisal sources, rewards, and recognition. We also investigate whether a greater alignment between quality and performance management system components results in performance management and organizational effectiveness. In addition to performance management system components, we explore the broader human resource management environment. By examining the influence of human resource management values and strategic integration, we gain perspective on the issue of system and sub-system alignments.

The need to produce such contingency knowledge was a recurring theme in Sousa and Voss's (2002) review of the quality management literature. Moreover, views of how to fit performance management to quality are not unanimously held. For instance, some authors prescribe self-ratings in quality-driven organizations (Bowen & Waldman, 1999), while others advise against them (Ghorpade & Chen, 1995). Although some authors recommend behavioural performance criteria (Masterson & Taylor, 1996), others consider that results-based performance criteria bolster the quality imperative (Schonberger, 1994). Few studies, if any, investigate the actual existence of alignments between an organizational emphasis on quality and performance management system components. Furthermore, if the expected alignments do in fact exist, we know little of their effectiveness, leaving largely unanswered the question submitted by Cardy and Dobbins (1996) about whether the prescriptive characteristics found in the literature are related to effectiveness.

Theory and Hypotheses

Contingency theory holds that organizational effectiveness results from fitting characteristics of the organization, such as components of a performance management system, to contingencies that reflect the situation of the organization, such as a quality strategy (Burns & Stalker, 1961; Donaldson, 2001; Lawrence & Lorsch, 1967; Pennings, 1992; Woodward, 1965). A basic building block of contingency theory is the concept of fit, which can be viewed, among other perspectives, in terms of matching and moderation (Venkatraman, 1989).

The matching perspective specifies fit as a theoretically defined match between two related variables, without reference to a criterion variable. For instance, a significant positive relationship between a quality emphasis and the use of collective rewards would constitute evidence of matching. This perspective received considerable attention in the strategic human resource management literature (e.g., Baird & Meshoulam, 1988; Miles & Snow, 1984; Wright & Snell, 1998), and research findings are supportive of human resource management practices being congruent with strategy (e.g., Arthur, 1992; Bird & Beechler, 1995; Delery & Doty, 1996; Jackson, Schuler, & Rivero, 1989; Peck, 1994; Schuler & Jackson, 1988).

The moderation perspective holds that the interaction between two variables predicts a third variable. For instance, the interaction between a quality emphasis and collective rewards would predict organizational effectiveness. In accordance with this view, Delery and Doty (1996) found some support for the proposition that the positive effect of human resource management practices on financial performance is moderated by the degree to which the behaviours encouraged by these practices are consistent with the organization's strategy. Thus, in this and other studies (e.g., Kerr & Jackofsky, 1989), the fit between human resource management practices and business strategy explained additional variance in performance. Of particular interest, the study conducted by Youndt, Snell, Dean, and Lepak (1996) derived a large performance impact from linking human capital-enhancing practices with a quality manufacturing strategy. Such evidence suggests that the link between human resource management and a quality strategy can influence organizational performance.

Consistent with both the matching and moderation perspectives, an abundant literature urges a greater alignment of human resource management policies and practices to the quality imperative (e.g., Cardy & Dobbins, 1996; Carter, 1993; Caudron, 1993; Dreher & Dougherty, 2002; Monks, Buckley, & Sinnot, 1996; Simmons, Shadur, & Preston, 1995; Ulrich, 1993). In particular, and in response to Deming's (1986) admonition of per-

formance appraisals, designing performance management systems that sustain quality is the focus of much attention (e.g., Armstrong & Baron, 1998; Bowen & Waldman, 1999; Cardy, 1998; Cardy et al., 1995; Ghorpade & Chen, 1995; Graber et al., 1995; Masterson & Taylor, 1996; Waldman, 1994a).

The advice offered in this literature is conceptually appealing, but fails to address the need for research findings that elucidate key alignments between quality and performance management. This, we argue, is problematic on both theoretical and practical grounds. First, a lack of empirical evidence casts doubts upon the validity of theorizing in the area of strategic human resource management. A demonstration that performance management systems correspond in hypothesized ways to a quality emphasis would provide suggestive evidence that organizations are indeed linking their performance management practices to broader environmental variables (Schuler & Jackson, 1987). Second, from a practical standpoint, empirical evidence of an alignment would suggest that performance management systems can be compatible with quality, a proposition that in itself remains widely disputed (Bowman, 1994; Deming, 1986; Scholtes, 1993). Such evidence would further point to the strongest and weakest links between quality and performance management system design features. In addition, the moderation perspective could provide evidence of the effectiveness of various performance management configurations in a quality context.

Matching Hypotheses

A greater emphasis on system factors in quality-driven organizations forms the basis for the prediction that contextual work behaviour performance criteria will be prominent in such organizations. In the quality mindset, errors are assumed to be largely due to system factors (e.g., materials, resources, supervision, work flows) rather than worker characteristics (Carson, Cardy, & Dobbins, 1991; Deming, 1986, 1993; Juran, 1989; Walton, 1986). To the extent that performance is considered a function of system factors, the emphasis of performance management should shift from results to process (Cardy, 1998).

Process-oriented performance appraisals are concerned with behavioural processes, how the work is done, and the manner by which an individual implements a work strategy (Lam & Schaubroeck, 1999). As such, an emphasis on system factors and process in quality-driven organizations is likely to result in more attention given to contextual work behaviour than to results (Armstrong & Baron, 1998; Cardy et al., 1995; Ghorpade & Chen, 1995; Guinn, 1992; Waldman, 1994b). Contextual work behaviours support the organizational,

social, and psychological environment in which the technical core must function (Borman & Motowild, 1993). Accordingly, behaviours such as volunteering, helping, and cooperating are deemed critical to system improvement (Cardy, 1998). Based upon the preceding arguments, we propose the following hypothesis:

Hypothesis 1: The stronger the organization's emphasis on quality, the more prevalent will be the use of contextual work behaviour performance criteria.

Performance criteria in a quality setting are also more likely to be quality oriented than quantity oriented. This proposition does not stem from underlying quality management principles, but rather from the acknowledged principle that performance appraisal criteria should not only reflect task requirements, but also corporate goals (Murphy & Cleveland, 1995). The specific need for quality-oriented performance criteria is further discussed by a number of authors who show an interest in how the organizational environment affects performance management (e.g., Blakburn & Rosen, 1993; Bowen & Lawler, 1992). The essence of their views is expressed in the following hypothesis:

Hypothesis 2: The stronger the organization's emphasis on quality, the more prevalent will be the use of quality-oriented performance criteria.

In the quality mindset, performance is viewed largely as a function of the system. Because the system is broader than the individual, authors have recommended that more attention be given to collective performance than to individual performance (Bowman, 1994; Cardy & Dobbins, 1996; Graber et al., 1995; Masterson & Taylor, 1996; Schonberger, 1994). The greater occurrence of teams in quality-driven organizations (Dreher & Dougherty, 2002) and the need for cooperative efforts (Bushe, 1988) require that organizations institute outcome interdependencies with collective appraisals and rewards, rather than evaluate people solely for their individual performance (Clinton, Williamson, & Bethke, 1994; Olian & Rynes, 1991).

Waldman and Kenett (1990) point to the need for "work-system appraisals to solve problems and improve and standardize the entire group's performance" (p. 68). Otherwise, a focus on individuals may divert attention from root systemic causes of poor quality (Bowen & Lawler, 1992). Moreover, Cardy et al. (1995) argue that "shifting the level of evaluation from the individual to the group relieves the rater from having to separate person and system factors at the individual level" (p. 113). In sum, appraising and rewarding collective contributions at the group or unit level rather than individual

contributions is considered an effective practice in quality-driven organizations (Waldman, 1994a). Given that the use of collective rewards implies collective appraisals, we submitted the following hypothesis to empirical scrutiny:

Hypothesis 3: The stronger the organization's emphasis on quality, the more prevalent will be the use of collective rewards.

One of Crosby's 14 points for producing quality was recognition. Thus, the recognition of achievements is consistent with quality principles (Redman & Matthews, 1998) and anecdotal evidence suggests that employee recognition programs are more prevalent in quality-driven organizations. Schonberger (1994) mentioned a number of companies that use recognition, including ceremonies, to support their quality drive. Such companies seemingly use recognition because it bolsters employee participation and involvement, which are regarded as being fundamental to quality improvement. Additional examples of employee recognition programs in quality-driven organizations further emphasize the benefits of public recognition (Olian & Rynes, 1991). Consequently, the following hypothesis was submitted to empirical scrutiny:

Hypothesis 4: The stronger the organization's emphasis on quality, the more prevalent will be the use of public recognition.

Another imperative of the quality movement is a commitment to continuous improvement and learning through employee development (e.g. Crosby, 1979; Deming, 1982, 1986; Dreher & Dougherty, 2002). As an indication of this, anecdotal evidence suggests that staff and management training intensifies following the introduction of quality initiatives (Monks et al., 1996). Quality initiatives therefore underscore the need for employees to develop in the areas of quality principles, attitudes and values relating to quality, quality-process, measurement, statistical techniques, equipment use, running meetings, benchmarking, team building, interpersonal communication, and team problem-solving (Bowen & Lawler, 1992; Brown, 1992; Cardy & Dobbins, 1996; Caudron, 1993; Clinton et al., 1994; Olian & Rynes, 1991). Employees need the knowledge and skills to make decisions in the spirit of their full participation in quality improvement.

Considering then that employee competencies are a strong pillar of quality, the developmental purpose of performance management should prevail within quality-driven organizations (Cardy, 1998; Waldman & Kenett, 1990). It is common knowledge that performance management systems can serve both administrative and

developmental purposes. In a quality setting, the developmental purpose is considered most meaningful (Grote, 1996). To the extent that employee development is a primary concern in quality-driven organizations, a greater focus on competencies could be expected, as the following hypothesis predicts:

Hypothesis 5: The stronger the organization's emphasis on quality, the greater the focus on competencies within the performance management system.

Another strong pillar of the quality approach is that the customers of a product or service are the centre of attention and the satisfaction of both internal and external customers is the driving force behind work processes (Bounds & Dobbins, 1993; Cardy & Dobbins, 1996). When customers determine the standards and directions for improving performance, the performance management process becomes integrated into customer-supplier relationships, where the customer is the source of appraisal and the supplier the recipient of the appraisal (Blakburn & Rosen, 1993; Bowen & Waldman, 1999). Considering that each supplier generally has multiple customers, the involvement of multiple raters is required for a full assessment of the supplier's performance.

A customer-centric organization also relies on a greater integration of processes and functions rather than on top-down hierarchical frameworks and power relationships that create functional silos (Cardy, 1998; Cardy & Dobbins, 1996). Functional integration requires the involvement of more people from various positions and coworkers and direct reports, as well as the person's supervisor, could all be expected to offer developmental feedback and guidance (Caudron, 1993). In a more integrated customer-centric environment, subordinates are viewed as internal customers of the process of leadership. Consequently, upward feedback from subordinates appears natural in a quality setting. Peer appraisals provide additional depth to performance appraisals and demonstrate further integration of customer-supplier relationships. They are also consistent with a participative, team-based, quality-driven organization (Bowen & Lawler, 1992). In sum, because customer satisfaction is a fundamental consideration and given the need for integration to achieve customer satisfaction, multisource feedback would appear to be an effective lever (Antonioni, 1994; Dubnicki & Williams, 1992). Hence, the following hypothesis:

Hypothesis 6: The stronger the organization's emphasis on quality, the more prevalent will be the use of multisource feedback and, in particular, subordinate and peer appraisals.

Another key feature of quality management is the need for full participation of the workforce to make qual-

ity everyone's concern (Oakland, 1989). A quality management principle discussed by Deming (1986) is the removal of barriers to employee participation and control of their own quality. A greater focus on employee participation and involvement, as a result of the introduction of quality initiatives, was observed in one study (Monks et al., 1996). Consequently, in quality-driven organizations, where employees are empowered to take responsibility for improving quality, employee participation in the performance management process should be encouraged as well (Armstrong & Baron, 1998; Caudron, 1993; Dubnicki & Williams, 1992; Findley, Amsler, & Ingram, 1999; Guinn, 1992). Such participation is expected to benefit the individual and the quality effort. Meta-analytic findings suggest that greater employee participation in the performance appraisal process is associated with positive employee reactions toward the appraisal system (Cawley, Keeping, & Levy, 1998). Thus, a more participative approach would help reduce the "devastation" that Deming describes. In addition, several authors consider that employee participation in performance management is especially desirable in a quality context (Cardy et al., 1995; Graber et al., 1995; Masterson & Taylor, 1996). Thus, the quality effort could benefit as well.

Participation in the performance management process may be fostered in different ways, but generally includes the opportunity to self-appraise at the preappraisal stage (Anderson, 1993), which, in turn, is likely to increase ratees' participation in the appraisal interview (Farh, Werbel, & Bedeian, 1988; Latham & Wexley, 1981). Accordingly, we view employee participation in the performance management process as the use of self-appraisals, which is consistent with the emphasis on control of their own quality mentioned by Deming (1986). Moreover, Cardy (1998) argued that the quality imperative requires an inclusive approach that allows ratees to conduct a self-appraisal using the same performance dimensions as the rater. Finally, Cardy et al. (1995) noted that self-raters may be much more sensitive to system factors (e.g., situational constraints) than are supervisors. As such, self-appraisals are consistent with the emphasis on system factors in the quality literature. Hence, we predicted that:

Hypothesis 7: The stronger the organization's emphasis on quality, the more prevalent will be the use of self-appraisals at the preappraisal stage.

A final factor that may shed some light on the role of performance management in quality-driven organizations is the degree of strategic integration of human resource management. This strategic integration is achieved with greater participation of the human resource management function in the strategic decision-making process, which is indicative of the importance of

people in the organization. We should note that all of the above-proposed alignments between quality and performance management system components underscore the importance of people in any quality initiative. Although the message is delivered in various ways, it seems clear that employees must have a significant degree of psychological identification with the company for quality to work (Schuler, Galante, & Jackson, 1987). Consequently, drawing from the assumption that people are important in quality-driven organizations, we should find a greater degree of strategic integration of human resource management in such organizations.

Hypothesis 8: The stronger the organization's emphasis on quality, the greater will be its strategic integration of human resource management.

Moderation Hypotheses

Conceptualizing fit as moderation is an extension of the matching perspective, where the alignments argued in the matching hypotheses are expected to predict a third variable. Here, the relationships between quality and performance management system components are expected to influence performance management and organizational effectiveness. Performance management effectiveness is considered a proximal outcome and organizational effectiveness is considered a distal outcome. These effectiveness ratings provide a yardstick for judging the value of proposed alignments.

Performance management systems are most effective when they support organizational goals (Murphy & Cleveland, 1995). If this proposition is robust, we should find that interactions between performance management system components and quality (i.e., an organizational goal) to be associated with more favourable perceptions of performance management system effectiveness. We should note here that performance management system effectiveness reflects the extent to which human resource managers perceive that their performance management system is achieving performance improvement targets. Survey evidence suggests that some performance management systems are considered highly effective whereas others are not (Gosselin & Murphy, 2001). The strategic perspective suggests that a better alignment of performance management to organizational goals should improve perceptions of performance management system effectiveness. Thus, the following hypothesis:

Hypothesis 9: Performance management system components that are consistent with a quality emphasis (i.e., based on our review of the literature) will have a stronger positive influence on performance management effectiveness in organizations with a greater quality emphasis.

We also sought to investigate the influence of strategic integration and developed the following hypothesis to express its influence within a moderation perspective:

Hypothesis 10: The strategic integration of human resource management will have a stronger positive influence on performance management effectiveness in organizations with a greater quality emphasis.

According to Deming's (1993) theory of profound knowledge, the success of quality management efforts depends on the effective integration of various management subsystems. A management subsystem of interest in this study is the performance management subsystem, the object of an ongoing debate. Its successful integration is likely to lead to the success of quality management efforts and, ultimately, to organizational performance. Therefore, the following hypothesis was developed from the moderation perspective:

Hypothesis 11: A quality emphasis will have stronger positive influence on organizational performance when performance management system components are consistent with a quality emphasis (i.e., based on our review of the literature).

The moderating influence of strategic integration was predicted in the following hypothesis:

Hypothesis 12: A quality emphasis will have stronger positive influence on organizational performance when the strategic integration of human resource management is greater.

Method

A pre-tested, 16-page questionnaire was mailed to the person in charge of human resource management in 1,556 Canadian organizations with 200 and more employees located in Quebec. The organizations were identified with the Dun & Bradstreet listing and a phone survey was conducted to obtain the name of the person responsible for human resource management within each organization. The questionnaire was written in French and the conventional method of back-translation (Brislin, Lonner, & Thorndike, 1973) was used to translate the established scales from English to French. The questionnaire was then pre-tested with several human resource managers from various firms who were asked to comment on any item that they found ambiguous or difficult to understand. These queries did not reveal any major changes that needed to be made to any of the items. Given that 312 completed questionnaires were returned and that 30 questionnaires were returned with mention of

unknown address, the response rate was 20%. This response rate is comparable to those obtained in similar surveys we consulted (e.g., Delery & Doty, 1996; Guthrie, 2001; Terpstra & Rozell, 1993). Furthermore, it compares favourably to those of survey-based studies of high performance work systems reviewed by Becker and Huselid (1998), which had response rates ranging from 6 to 28%, with an average of 17.4%.

About 35.9% of the responding organizations had between 200 and 399 employees, 27.9% had between 400 and 799 employees, 9.3% had between 800 and 1,199 employees, 9.3% had between 1,200 and 1,999 employees, and 17% had over 2,000 employees. The sample included organizations from a wide range of industries, including 14.2% in health care, 10.6% in manufacturing of durable goods, and 4.8% in financial services. The sample included 46.2% of organizations that were part of a larger group (i.e., subsidiary, division, or business unit) and the average age of the responding organizations was 49.09 years. Most organizations were in the private sector (60.6%) and a strong proportion of responding organizations were unionized (81.7%). Forty percent of responding organizations had a quality certification (e.g., ISO 9000). Finally, the actual respondents had an average of 7.35 years of experience in their current position and were mostly male (53.8%).

Measures

A number of different conceptualizations of quality are found in the literature. A quality strategy, however, generally aims to establish a reputation of reliability and quality among customers and to improve its operating efficiencies by minimizing scrap and "redos." Although quality is a concern in most organizations, the emphasis on quality as a source of competitive advantage is likely to vary from one organization to another. We tried to capture this variation by developing an original seven-item index reflecting different aspects of quality. The selected items were located in different scales investigating broad organizational contexts. For instance, we asked respondents to indicate whether their organization had a quality certification (e.g., ISO 9000). We also enquired about the extent to which they agreed that their organization's clients are a priority (see Appendix A for scale items, means, and standard deviations). Because measurement of these items involve different scale formats, responses were standardized first and an average score was then computed. The reliability coefficient for this index was acceptable ($\alpha = .74$).

The notion of contextual work performance enlarged the domain of work performance beyond those behaviours that are directly linked to tasks. Borman and Motowildo's (1993) contextual performance taxonomy

included five factors, namely (a) persisting with enthusiasm and extra effort as necessary to successfully complete one's own task activities; (b) volunteering to carry out task activities that are not formally part of one's own job; (c) helping and cooperating with others; (d) following organizational rules and procedures; and (e) endorsing, supporting, and defending organizational objectives. Our questionnaire asked respondents to indicate the importance in their organization of a sample of performance appraisal criteria. Ten were considered relevant to the concept of contextual work performance and they covered two facets of contextual work performance that are considered highly relevant to a strategy of quality improvement, namely (1) volunteering to carry out task activities that are not formally part of one's own job and (2) helping and cooperating with others. The participatory and collectivistic nature of quality initiatives seemingly justifies the need for volunteering and cooperating and by combining these two facets into a single scale ($\alpha = .84$) we obtain a measure of contextual work performance that is consistent with the quality imperative. The response format ranged from *very little importance* (1) to *a high degree of importance* (5).

A single question assessed the importance given to quality-oriented performance criteria. It asked about how much importance management gave to quality improvement for the appraisal of employee performance. The response format ranged from *very little importance* (1) to *a high degree of importance* (5).

The degree of use of collective rewards was assessed by summing the use of five types of collective rewards. Respondents were requested to indicate whether each type of collective reward was used for each of seven categories of personnel (i.e., executives, managers, professional, clerical staff, production personnel, sales force, research and development staff). To the extent that at least one category of personnel was targeted by the collective reward type, the organization was coded as having that collective reward. The five types of collective rewards were bonuses as a function of team performance, unit performance, productivity gains, achieving organizational objectives, and profitability. The sum of the presence of these collective reward schemes produced the scale ($\alpha = .64$).

The use of public recognition was assessed with five items that reflected how often (1 = *almost never* to 5 = *continuously*) effective performance was recognized with (a) trophies, certificates, and other honorary symbols; (b) by making it known at meetings; (c) with a letter of thanks; (d) by advertising it in the company newspaper or other outlets; and (e) by celebrating achievements at a ceremony or gala ($\alpha = .75$).

A greater focus on competencies within the performance management system can be expressed in different

ways. Organizations can emphasize performance criteria that value skill development or effective application of competencies. In addition, reward systems can reinforce skill development. A sophisticated skill-based pay plan can be implemented as well. Organizations may also wish to encourage training needs assessments during performance appraisals. In order to capture these possibilities, we developed an original six-item index drawing from different sections of the questionnaire. Included in the set of performance management practices that emphasize skill development were the use of (a) competency-oriented performance criteria, (b) task-mastery performance criteria, (c) merit pay that is a function of competencies, (d) bonuses that are a function of competencies, (e) training needs analysis, and (f) an official competency assessment system for at least one category of personnel. Although the internal consistency of the index was low ($\alpha = .44$), suggesting that organizations generally do not implement coherent sets of performance practices that emphasize skill development, higher scores would still reflect a greater integration of skill development into performance management. Moreover, it could be argued that an alpha coefficient is not appropriate here, in view of the composite nature of this variable (Brooke & Price, 1989). However, to avoid understating some relationships, additional analyses were conducted in the results section to evaluate the items of this scale separately.

One question asked whether multisource (360) feedback was used for at least one category of personnel over the last 24 months. Of particular interest in this study is the use of upward feedback and peer appraisals. Thus, we included two additional measures. They instructed respondents to indicate whether or not in their organization the performance of various categories of personnel was assessed by their subordinates or by their peers. Scores were computed across six job categories (i.e., all but the executive category). Use of self-appraisals was measured much in the same way, but with only five categories of personnel (i.e., all but the executive and manager categories).

Two indicators from different scales measured the strategic integration of human resource management. The first asked about how important it was to management that the head of the human resources department be involved in strategic planning. The second prompted respondents to indicate on a five-point scale the degree to which human resource management is part of the strategic decision-making process in their organization. Because of their strong association ($r = .64$, $p = .00$), these two indicators were combined to form a single measure of the strategic integration of human resource management.

Performance management system effectiveness was

Table 1
Means, Standard Deviations, and Listwise Correlations^a

	Means	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1. Quality Emphasis ^b	3.60	0.70																		
2. Contextual Criteria	3.82	0.56	.37																	
3. Quality Criteria	3.97	0.76	.38	.29																
4. Collective Rewards	0.70	1.09	.21	.03	.04															
5. Public Recognition	2.06	0.75	.21	.37	.11	.12														
6. Competency-Based ^c	0.00	0.53	.24	.14	.09	.22	.16													
7. Multisource Feedback	0.16	0.37	.13	.17	.03	.12	.20	.18												
8. Subordinate Appraisals	0.08	0.28	.13	.13	-.00	.06	.08	.18	.29											
9. Peer Appraisals	0.11	0.30	.12	.10	.01	.12	.09	.16	.21	.55										
10. Self Appraisals	0.37	0.48	.21	.06	.06	.07	.05	.23	.15	.18	.16									
11. Strategic Integration	3.48	1.02	.28	.40	.12	.17	.33	.11	.07	.11	.09	.07								
12. PM Effectiveness	3.48	0.66	.29	.35	.17	.20	.28	.19	.07	.07	.02	-.01	.37							
13. Org. Performance	3.43	0.50	.53	.38	.28	.15	.20	.22	.08	.10	.09	.08	.29	.27						
14. Uncertainty	3.55	0.79	.16	.26	.16	.01	.18	.07	.10	.05	.08	.10	.16	.14	.10					
15. Part of Group	0.46	0.50	.15	-.06	.00	.23	.06	.20	.16	.09	.00	.09	-.06	.08	.01	-.02				
16. Size	3.55	2.92	.07	-.02	.02	.02	.11	.01	.07	.04	.07	.09	-.10	-.04	.05	.02	.11			
17. Sector	0.59	0.49	.39	-.06	.10	.46	-.06	.27	.15	.04	.00	.13	-.01	.17	.29	-.03	.42	-.03		
18. Union	0.82	0.39	-.04	.02	.03	-.07	-.09	-.13	.09	.02	.09	-.05	-.00	-.16	-.04	-.08	-.02	.11	-.26	

a For all correlations greater than .11, $p < .05$; for all correlations greater than .09, $p < .10$.

b The mean and standard deviation on this variable was obtained by transforming items from different scale formats unto a five-point scale.

c The mean for this variable is 0 because the scale items were standardized.

Table 2
Partial Correlations^a

	1	2	3	4	5	6	7	8	9	10
1. Quality Emphasis										
2. Contextual Criteria	.41***									
3. Quality Criteria	.34***	.26***								
4. Collective Rewards	.01	.09	-.01							
5. Public Recognition	.22***	.36***	.10	.18**						
6. Competency-Based	.13*	.16**	.05	.10	.14*					
7. Multisource Feedback	.04	.19**	.00	.02	.20**	.15*				
8. Subordinate Appraisals	.12†	.13*	-.03	.03	.09	.16**	.28***			
9. Peer Appraisals	.11†	.08	-.02	.12*	.11†	.16**	.19**	.51***		
10. Self Appraisals	.15*	.07	.04	-.01	.06	.20**	.13*	.18**	.15*	
11. Strategic Integration	.28***	.39***	.11†	.22***	.38***	.13*	.06	.11†	.08	.05

^a † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

assessed with 16 items and a Likert-type response format ranging from *totally disagree* (1) to *totally agree* (5) ($\alpha = .94$). Items were selected on the basis of a review of the literature. Sample items from the scale are "this organization's performance management"... (a) "improves individual performance," (b) "improves employee retention," and (c) "makes change easier."

Organizational performance was assessed with an 11-item scale adapted from Delaney and Huselid (1996) ($\alpha = .84$). The five-level response format prompted respondents to indicate whether, relative to other organizations in their activity sector, their firm was doing *much worse* (1) to *much better* (5). Sample items included "client satisfaction", "marketing capacity", and "profits."

The five control variables that were deemed important in this organizational-level study were environmental uncertainty, whether the responding organization was part of a larger group, size, sector, and union presence. Environmental uncertainty was assessed with a four-item Likert-type scale ranging from *totally disagree* (1) to *totally agree* (5). Respondents indicated their level of agreement with the following statements: "In our industry, environmental changes (technological, economic, etc.) are (a) frequent, (b) unpredictable, (c) important, (d) increasing ($\alpha = .79$). Respondents indicated whether their organization is part of a larger group (i.e., whether their organization is a subsidiary, division, or business unit) (coded *no* = 0 and *yes* = 1). Size was assessed as the number of employees in nine categories ranging from 200 to 3,000 and more employees. Responding organizations were coded as being either public (coded 0) or private sector (coded 1). Finally,

union presence was assessed in terms of union coverage for at least one category of personnel.

Results

Table 1 presents the means, standard deviations, and listwise correlations for all variables. The observed correlations are consistent with the matching hypotheses. All of the correlations in Table 1 between the independent variables and quality are significant in the predicted direction. Further tests call upon analytical models that include five control variables.

Matching Hypotheses

The matching hypotheses are further tested using partial correlations and hierarchical regression analyses. Table 2 includes the partial correlations between the dependent and independent variables while controlling for environmental uncertainty, whether the responding organization is part of a larger group, size, sector, and union presence. The results show a highly significant association between a quality emphasis and the importance given to contextual work behaviour criteria, in the direction predicted by our first hypothesis. Thus contextual work behaviour criteria are deemed more important in organizations with a stronger quality emphasis. H2 is also supported by a significant positive relationship indicating that a quality emphasis is associated with more consideration given to quality-oriented performance criteria. H3, predicting that collective rewards would be

Table 3
Summary of Results from Regression Analyses^a

	Model 1 Control		Model 2 Quality Emphasis		
1. Contextual Criteria	ΔR^2	0.072**	β	0.434***	ΔR^2 0.152***
2. Quality Criteria	ΔR^2	0.045*	β	0.372***	ΔR^2 0.112***
3. Collective Rewards	ΔR^2	0.211***	β	0.014	ΔR^2 0.000
4. Public Recognition	ΔR^2	0.067**	β	0.255***	ΔR^2 0.053***
5. Competency-Based	ΔR^2	0.089***	β	0.155*	ΔR^2 0.019*
6. Multisource Feedback	ΔR^2	18.668**	Wald	0.608	ΔR^2 0.615
7. Subordinate Appraisals	ΔR^2	3.748	Wald	4.459*	ΔR^2 4.804*
8. Peer Appraisals	ΔR^2	5.430	Wald	3.500†	ΔR^2 3.70†
9. Self Appraisals	ΔR^2	11.421*	Wald	7.188**	ΔR^2 7.494**
10. HRM Values	ΔR^2	0.037*	β	0.394***	ΔR^2 0.124***
11. Strategic Integration	ΔR^2	0.040*	β	0.321***	ΔR^2 0.082***

^a † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

more prevalent in organizations with a stronger quality emphasis, is no longer supported when control variables are added to the prediction model. A greater use of public recognition is found, however, in quality-driven organizations, supporting H4. In addition, a quality emphasis is associated with more attention given to competencies within performance management systems, thus supporting H5. A quality emphasis, however, is not predictive of the use of multisource feedback. Only marginally significant associations between a quality emphasis and subordinate and peer appraisals provide support for H6. Supporting H7, a quality emphasis is associated with a greater prevalence of self-appraisals. Finally, the partial correlations indicate that a quality emphasis is associated with a greater degree of human resource management strategic integration (H8).

Hierarchical regressions provide additional information on the above relationships, in particular, about changes in the explained variation in performance management system components when quality emphasis is added to a regression model comprising five control variables. Two regression techniques were used to predict and explain components of performance management. Multiple regression was the preferred technique when the dependent variables were metric. Dichotomous dependent variables were predicted with the logistic regression technique. Changes in the model are assessed with an adjusted R^2 change in multiple regression and with chi-square change in logistic regression. Standardized beta coefficients are used in multiple regression whereas Wald coefficients are used in logistic regression.

Considering, however, that 11 regressions were needed to complete the analyses, only summary results are provided (full results available upon request).

Table 3 provides additional support for the relationships obtained with partial correlations. We find, however, stronger evidence that a quality emphasis is associated with greater use of subordinate and self appraisals. Table 3 also provides information about the explained variation in performance management system components when control variables are entered (Model 1) and then when a quality emphasis is entered (Model 2). We find, for instance, that the five control variables explain 7.2% of the variance in contextual work behaviour criteria and that a quality emphasis explains an additional 15.2% of variance. The results show that a quality emphasis is often a stronger predictor than are the five control variables entered together.

Moderation Hypotheses

The hypotheses developed within the moderation perspective were all tested with multiple hierarchical regressions. In the first set of regression models, performance management effectiveness was regressed on main effects and interaction terms. Control variables were entered on step one. Performance management system components were entered on step two. Quality emphasis was entered on step three. The interaction terms between the nine performance management components and quality emphasis were entered on step four of the hierarchical regressions. In this paper we only report the vari-

ance change on step four to determine whether the interaction terms added significant explanation (full results available upon request). Variables were mean centred to compute the interaction terms. However, variables computed from standardized items and dichotomous variables were not mean centred.

Some support was found for H9, which predicted that performance management system components that are consistent with a quality emphasis will have a stronger positive influence on performance management effectiveness in organizations with a greater quality emphasis. Results show that the inclusion of the interaction terms on step four of the hierarchical regression added significant variance explanation ($\Delta R^2 = 0.048^*$; $p = 0.047$). The coefficients suggest that performance management systems are perceived as more effective when subordinate appraisals are used in quality-driven organizations ($\beta = 0.180^*$; $p = 0.023$). The plotted interaction displayed in Appendix B shows an increase in performance management effectiveness when subordinate appraisals are used in conjunction with a higher quality emphasis and that lower performance management effectiveness is observed when subordinate appraisals are used with a weaker emphasis on quality. No support was also found for Hypothesis 10, which predicted that strategic integration of human resource management will have a stronger positive influence on performance management effectiveness in organizations with a greater quality emphasis. Results show that the inclusion of the interaction term between that strategic integration of human resource management and quality on step four of the hierarchical regression did not add significant variance explanation ($\Delta R^2 = 0.001$; $p = 0.470$).

In the second set of regression models, organizational performance was regressed on main effects and interaction terms. Control variables were entered first, followed by a quality emphasis, followed by performance management system components, and by the interaction terms between quality emphasis and the nine performance management components. No support was found for H11, which predicted that a quality emphasis will have stronger positive influence on organizational performance when performance management system components are consistent with a quality emphasis ($\Delta R^2 = 0.020$; $p = 0.500$). Moreover, no support was found for H12, which predicted that a quality emphasis will have stronger positive influence on organizational performance when the strategic integration of human resource management is greater ($\Delta R^2 = 0.002$; $p = 0.398$).

Additional Analyses

Because it is difficult to detect moderating effects with low reliability estimates (Dunlap & Kemery, 1988),

we conducted additional analyses to further investigate the influence of collective rewards and competency-based performance management, two indexes with low reliability estimates ($\alpha = .64$ and $.44$, respectively). Because of low reliabilities, we took these two scales apart and examined individual items. First, performance management effectiveness was regressed on main effects and interaction terms. Control variables were entered first, followed by five collective reward schemes, followed by a quality emphasis, and by the interaction terms. No evidence of a moderating effect was found ($\Delta R^2 = 0.008$; $p = 0.734$). In another hierarchical regression, control variables were entered first, followed by a set of performance management practices that emphasize skill development, followed by a quality emphasis, and by the interaction terms. Again, no evidence of a moderation effect was found ($\Delta R^2 = 0.018$; $p = 0.432$). Second, organizational performance was regressed on main effects and interaction terms. Control variables were entered first, followed by a quality emphasis, followed by five collective reward schemes, and by the interaction terms. No evidence of a moderating effect was found ($\Delta R^2 = 0.005$; $p = 0.815$). In another hierarchical regression, control variables were entered first, followed by a quality emphasis, followed by six performance management practices that emphasize skill development, followed by the interaction terms. No evidence of a moderation effect was found ($\Delta R^2 = 0.007$; $p = 0.843$). These results suggest that low reliabilities on measures of collective rewards and competency-based performance management were not the root cause of non-significant interactions in our initial analyses.

Discussion

This study brings empirical scrutiny to the often discussed but seldom verified links between quality and performance management systems. In addition to upholding some commonly held beliefs, the findings raise a number of questions that might be addressed in future research. With regards to the suggested alignments between performance management and quality, our findings provide support for predictions of a greater use of contextual work behaviour criteria, quality-oriented performance criteria, public recognition, competency assessments, subordinate appraisals, peer appraisals, and self appraisals within quality-driven organizations. These alignments are consistent with the matching perspective of contingency theory as well as with anecdotal evidence found in the literature.

Accordingly, quality-driven organizations are more likely to prioritize behaviours that demonstrate volunteering to carry out task activities that are not formally

part of one's own job or helping and cooperating with others. Thus, quality appears to require more than specific task contributions and encompass an enlarged domain of work performance that includes contextual work performance. Apparently, employees in quality-driven organizations are expected to demonstrate behaviours that support the organizational system. Not surprisingly, an organizational emphasis on quality was also associated with quality-oriented performance criteria. This association is indicative of a quality strategy cascading down to the level of individual performance criteria and it shows that performance appraisal criteria not only reflect task requirements, but also corporate goals. The association between a quality emphasis and a greater use of public recognition was consistent with anecdotal evidence suggesting that such displays bolster employee participation, a critical quality requirement. In addition, a stronger quality emphasis is associated with more attention given to competencies in performance management, which is consistent with the needed commitment to learning that quality requires. The greater use of subordinate and peer appraisals seems to indicate that the performance management process does in fact become integrated into customer-supplier relationships in a way that is consistent with the need to make customers the centre of attention in quality-driven organizations. Finally, the greater use of self appraisals is consistent with the need for employee participation to make quality work.

Two predictions were not supported by our analyses. First, a quality emphasis was not associated with a greater use of collective rewards. Neither the collective rewards index nor any of the specific collective reward schemes analyzed separately in additional analyses were significantly associated with a quality emphasis. This casts doubt on the view that organization-wide gain-sharing or profit-sharing programs as well as group-level reward programs are especially relevant in quality-driven organizations (Hackman & Wageman, 1995). Although this finding runs counter to the prescriptive views of quality-reward system alignments, it is consistent with survey evidence that a low percentage of firms incorporate team incentives into their pay plans as a result of the implementation of total quality management (Lowery, Beadles II, & Carpenter, 2000). It does, however, underscore the challenge of changing reward systems to meet quality requirements within an individualistic society. The need to adapt reward system components to foster cooperative efforts may seem obvious in collectivistic cultures like Japan, where the quality movement was initiated. However, North American organizations may feel a stronger pull toward individualistic solutions, regardless of the stated requirements of quality initiatives. Second, a quality emphasis was not associated with a greater

adoption of multisource feedback, although subordinate and peer appraisals were more prevalent. The lack of support for an association between quality and multisource feedback, may be a function of the particular nature of multisource feedback programs. Multisource feedback, in many organizations, is not an ongoing process, but rather a one-time initiative typically implemented as part of a management development program. Thus, a weak integration of multisource feedback into various organizational processes would limit its role in quality-driven organizations, which rely upon ongoing process improvement and sub-system integration.

Quality-driven organizations are also more likely to show a greater degree of strategic integration of human resource management. The human resource management function was more likely to participate in strategic decision making in organizations with a strong quality emphasis. These findings underscore the importance of broader organizational and strategic human resource management considerations in quality management efforts. In turn, broader contingencies that reflect the value of people in the organization may precede the adoption of more specific configurations of management systems.

Although the matching perspective was generally supported, according to theorizing in the area of strategic human resource management, the moderation perspective was only mildly supported for predictions of performance management system effectiveness. The findings indicate that performance management system components that are consistent with a quality emphasis have a stronger positive influence on performance management effectiveness in quality-driven organizations. No support was found, however, for predictions of perceived organizational performance within the moderation perspective. Taken together, these findings suggest that sub-system alignment may influence the perceived effectiveness of that sub-system, but do little to influence organizational performance. In turn, the improved effectiveness of that sub-system may have a positive influence on organizational performance, as would suggest the significant positive correlation between both effectiveness variables.

The limitations of this study constrain our interpretation of the findings and point to several issues for future research. First, a key limitation of our research is that we have just one respondent per firm, and that individual is a human resources manager. While such an individual may be in a good position to comment upon performance management practices, she/he may have less expertise with regard to the types of issues mentioned in the quality index or in the organizational performance measure. An obvious solution would be to have multiple respondents per firm, with the various respondents having expertise in the particular areas

(Youndt et al., 1996). However, this procedure is much more costly and is likely to reduce the number of firms providing complete data. Second, this study only examined cross-sectional differences among firms. Gaining a more definite understanding of the relationships between quality and performance management will require longitudinal analysis. Third, some low reliabilities may have reduced our ability to detect significant relationships, especially with regards to the influence of interaction terms. It would appear that some performance management components that we identified as representing a construct that subsumes individual practices were rather a collection of distinct practices. This prompted us to perform additional analyses. A fourth limitation was the use of a perceptual measure of organizational performance. We should note, however, that perceptual measures are sometimes correlated with more objective measures (Delaney & Huselid, 1996; Montemayor, 1996). Finally, because we are using single-source data collected at one point in time, it is also possible that the results are somewhat inflated due to common method variance.

This study brought empirical scrutiny to a thorny problem. It investigated the alignment of performance management system components to a strategic emphasis on quality. Our results provide significant support for the idea that performance management system components can be designed in a way that is compatible with quality. Thus, rather than discard performance appraisals as quality scholars would advise, quality-driven organizations seemingly adapt their performance management system components to the people requirements of a quality strategy. Doing this, our findings suggest, may improve performance management system effectiveness.

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Appendix A
Seven-item quality index

	Scale	M	SD
1. How important is maintaining a tradition of quality to your organization's competitive strategy?	1-5	4.19	0.90
2. How important is improving coordination with suppliers and clients to your organization's competitive strategy?	1-5	3.78	1.05
3. How important a business priority is improving the quality of products or services to your organization?	1-5	4.22	0.80
4. In my organization, customers are a priority and employees are expected to provide a sustained effort to satisfy them.	1-5	4.13	0.79
5. How often does your management team help employees understand the influence of their work on client satisfaction?	1-5	3.10	1.08
6. Where does your organization stand in terms of its quality management?	1-5	3.30	1.05
7. Does your organization have a quality certification?	0-1	0.40	0.49

Appendix B

