



Human capital measures, strategy, and performance: HR managers' perceptions

HR managers'
perceptions

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Abstract

Purpose – The purpose of this paper is to report the results of a survey and interviews with human resource (HR) professionals to identify and better understand their perceptions and expectations of human capital measures' (HCM) content, links to strategy, and impact on performance.

Design/methodology/approach – This paper relies on a quantitative analysis of survey questionnaires collected from 104 HR executives, as well as on a qualitative investigation using six interviews. Two types of HCM are derived using principal component analysis. One factor measures employees' work efficiency and cost consciousness (efficiency indicators), whereas the second factor measures employees' entrepreneurial and innovative capabilities (innovation indicators).

Findings – The results confirm the following hypotheses: first, according to HR managers, the more advanced a company is in the development of HCM, the higher the company's performance; and second, in companies following a differentiation strategy, HR managers are interested in innovation indicators, while in those following a cost reduction strategy, HR managers are interested in efficiency indicators.

Research limitations/implications – Results are based on a cross-sectional study of HR professionals' perceptions. However, it underscores the critical role that HCM plays in delivering performance in the HR managers' opinion. It also shows that HR managers are conscious that HCM should be aligned with strategy.

Practical implications – Based on HR managers' perceptions, the paper suggests that HR professionals might invest more effort in creating and implementing their HCM to deliver higher levels of performance. It also implies that HR managers and management accounting and control systems experts have a common interest to collaborate when implementing HCM.

Originality/value – The paper demonstrates the importance of implementing human capital (HC) metrics into a strategic performance management system to deliver performance from a company's HC. It contributes to a cross-disciplinary (HRs, management control, and strategy) perspective on HC strategy.

Keywords Human capital, Performance measures, Human resources strategies

Paper type Research paper

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Introduction

Management literature, in particular resource-based strategy acknowledges the fundamental role of intangibles and human capital (HC) in the creation of value (Barney, 1991; Barney and Wright, 1998; Grant, 1991; Lev, 2001; Quinn *et al.*, 1996). HC encompasses all competencies and knowledge of an organization's workforce (Davenport, 1999). By structuring the management and sharing of this knowledge, the organization can develop key competencies that are difficult to imitate, and thereby gain a sustainable competitive advantage. Managing HC well can be a key success factor. This importance of HC led companies to implement human capital measures (HCM).

The form, content and efficacy of performance measurement systems (PMS) have been extensively studied in the management accounting and control systems (MACS) literature (Bruns, 1992; Eccles, 1991; Kaplan, 1990; Kaplan and Norton, 1996; Simons, 2000). This literature has criticized traditional financial performance measures and recommended, instead, the use of non-financial performance measures which are capable of measuring and controlling the organization's internal performance drivers (Dixon *et al.*, 1990; Fisher, 1992). HCM belong to this "new" set of non-traditional and non-financial performance measures.

The composition and form of these HCM have also given rise to an abundant literature, especially in the field of human resources (HR) management (Beatty *et al.*, 2003; Becker *et al.*, 2001; Boudreau and Ramstad, 2003; Fitz-Enz, 1995; Huselid *et al.*, 2005b). Indeed, armed with evidence of the value HC can help create, HR professionals can take a greater role in the formulation of strategy and of HCM. For many years, they have been encouraged to evolve away from administrative transaction processors to strategic business partners (Lawler *et al.*, 2006; Ulrich and Brockbank, 2005). With the widespread outsourcing of HR administrative tasks, this exhortation is becoming ever more urgent. One of the consistent refrains that accompany the encouragement for HR professionals to become strategic business partners concerns the use of HCM. As stated by Beatty *et al.* (2003, p. 107):

We wish to address what and how HR can contribute to the strategic success of firms by transforming itself from a partner (that can be removed or outsourced) to a player – on the field, in the game, with the ability to score. The ability to score necessitates a new understanding of the rules of the game – a new perspective on what HR is to contribute, how its systems enable it to contribute, and how its ultimate deliverables can be measured. The rules of the game mean that HR should only attempt to score on an HR scorecard integrated with the firm's Business Scorecard.

As a business partner involved in the formulation of strategy, HR professionals should thus be in a position to support the development of relevant strategic HC measures.

To the extent that HCM are part of MACS and that key performance indicators (KPI) and/or scorecards are often implemented by management accountants, it is important for management controllers to understand HR managers' perspective and their needs in terms of HC measures.

The MACS literature has also demonstrated that management control systems are contingent upon strategy (Chenhall, 2003; Hartmann and Moers, 1999; Langfield-Smith, 1997, 2007). This "fit" between strategy and MACS specifically applies to PMS (Burney and Widener, 2007; Chenhall, 2005; Chenhall and Langfield-Smith, 1998; Ittner *et al.*, 2003; Kaplan and Norton, 2004; Lillis, 2002; van der Stede *et al.*, 2006; Widener, 2006). In this literature, however, the distinction between performance measures remains at

a high level, most often simply between financial versus non-financial. Specifically, HCM, when included, remain broadly defined at the human resources level, such as employee satisfaction, turnover, or labor costs.

This paper combines and goes beyond the conclusions drawn from these different bodies of literature, in particular by focusing on HC measures that are one specific component of the non-financial measures used in the MACS literature. It reports the results of a survey and interviews of HR professionals to identify and better understand their perceptions and expectations of HC measures' content, links to strategy, and impact on performance.

Results confirm for researchers as well as HR and management control professionals the importance of implementing HC indicators in a strategic performance management system.

This paper is organized as follows. In the first section, we review the literature on HCM, their link with performance, and their "fit" with strategy. Based on this review, our hypotheses are formulated within this first section. Next section describes the research method. Results are presented and discussed in the third section. Finally, we conclude the paper by reviewing its limitations and contribution, and by pointing out directions for future research.

HCM: literature and hypotheses

HC and the development of HC metrics

Intellectual capital (IC) combines all the intangibles based on knowledge that an organization can use to acquire a competitive advantage and create value (Hamel and Prahalad, 1994). Although there are numerous definitions of IC (Bontis, 1998; Edvinsson and Malone, 1997; Mouritsen, 1998; OECD, 1999; Petty and Guthrie, 2000; Stewart, 1997; Tayles *et al.*, 2007), three components appear consistently: HC refers to the knowledge, competencies, experience, and creativity of the workforce as well as their attitudes and motivation. Structural capital includes all the structures, procedures, routines, cultural aspects, and data bases that permit an organization to codify, organize, and diffuse internally the knowledge and experiences generated by the HC. Relational capital integrates the knowledge about relationships with the organization's external partners such as customers, suppliers and local communities (Edvinsson and Malone, 1997; Stewart, 1997).

This paper focuses on HC because within the three IC categories HC is regarded as the most valuable asset (Backhuijs *et al.*, 1999; Johanson *et al.*, 1999). In addition, HC belongs to employees and is likely to raise challenging management control issues, making its measurement especially important (Coff, 1997; Widener, 2004). For this reason, many authors, using different approaches and names, have advocated the accounting of HC in organizations' PMS (Roslender, 1997; Roslender and Dyson, 1992; Roslender and Fincham, 2001).

In the management community, the definition of HC embraces all HC initiatives to recruit, develop, and retain employees (Tracey, 1991). While Stewart (1997) emphasizes that the primary purpose of HC is innovation in new products, services, or business processes, Edvinsson and Malone (1997) consider that HC is the "combined knowledge, skill innovativeness and ability of the company's individual employees."

There are numerous research studies demonstrating the impact of HC and HR management practices on performance (Ashton, 2005). Some focus on the workforce

itself (Carmeli and Tishler, 2004; Gupta, 1984; Gupta and Govindarajan, 1984), while others are more interested in the HR management practices intended to develop and exploit HC for performance (Arthur, 1994; Delaney and Huselid, 1996; Hitt *et al.*, 2001; Huselid, 1995; Huselid *et al.*, 1997; Youndt *et al.*, 1996; Youndt and Snell, 2004).

Given HC's central role in performance and value creation, the question rapidly arose as to how to render "tangible" these intangibles as well as to make explicit tacit knowledge (Johanson *et al.*, 2001; Tayles *et al.*, 2007). The objective was either to communicate to investors and external stakeholders the value contained in HC, or to help the company improve its HC productivity. To answer this question, companies as well as academics tried to design relevant measures.

Early development regarding how to measure and manage HC activities kept a sharp focus on efficiency and cost. An example is the research area known as human resource costing and accounting developed mainly in the 1970s and 1980s (Flamholtz, 1985; Gröjer and Johanson, 1998). Another example rests on the idea to benchmark a company's performance on HR functional metrics against other companies, for example, time-to-fill (recruitment), number of employees per HR professional, etc. (Fitz-Enz, 1995).

Interest in HC metrics evolved with research that developed out of the acknowledgement that traditional financial measures are lagging, backward-looking, and short-term indicators considered to be ill-suited to manage performance effectively (Dixon *et al.*, 1990; Eccles, 1991; Ittner and Larcker, 1998a, b; Johnson and Kaplan, 1987; Kaplan, 1984). This literature suggested that companies should implement non-financial performance measures to monitor the performance drivers at their upstream operational levels. These studies resulted in conceptual frameworks that describe how performance is generated within an organization and how its different components are linked by cause and effect relationships. The strategic map in its various forms such as the balanced scorecard with its "learning and growth" quadrant (Kaplan and Norton, 1992, 1996), as well as Skandia's value scheme (Edvinsson, 1997) and its formulation into the navigator, are striking examples of models where HC is considered to contribute in a fundamental way toward achieving strategic objectives.

This encouraged the HR profession to further quantify the HC contribution to performance[1]. Thus, HC measures have evolved to measure the workforce on more than just efficiency measures with customized measures for more complex jobs, for example, employee engagement and turnover among specific talent pools, etc. (Gates, 2004).

To account for this evolution of HC measures beyond the workforce costs and productivity, Boudreau and Ramstad (2003) proposed three categories of HCM:

- (1) efficiency measures focus on cost and report the financial efficiency of HR operations;
- (2) effectiveness measures reflect the effectiveness of HR programs on the competence, motivation, and attitude of the workforce; and
- (3) impact indicators measure the impact of HR programs and processes on the business performance.

These three categories correspond, according to Boudreau and Ramstad (2003), to the stage of advancement of HCM implementation. Companies begin by putting in place efficiency measures, and then they develop effectiveness measures before arriving at the final stage of impact indicators.

HC measures and performance

According to Marr *et al.* (2003), there are five reasons that explain why companies try to measure IC, and more specifically HC. In our opinion, two correspond to external reporting. On the one hand, it is a question of evaluating goodwill and the possibilities of creating value by integrating firms as part of the merger and acquisition process. On the other hand, a number of studies focus on the publication of information about intangibles and their impact on performance (e.g. the stock price) to help external investors in their decision-making process. Overall, these financial accounting studies demonstrate the impact of intangible assets on the financial performance and/or share value of the company. In addition, they examine the possibility to evaluate intangible assets at their fair value and to integrate them in the financial accounts according to accounting norms, in order to provide additional information to improve financial investors' ability to make their investment decisions (Burgman and Roos, 2007; Ghosh and Wu, 2007; Holland, 2003; Sáenz, 2005; Stolowy and Jeny-Cazavan, 2001).

The three other reasons advanced by Marr *et al.* (2003) concern improving internal decision support. First, measurement helps formulate strategy by identifying and paying attention to the key competencies contained in HC, which can thus be used to build a competitive advantage. Second, it also improves the evaluation of strategy execution. Finally, it can play a role in determining managers' remuneration by integrating non-financial criteria linked to HC. This measurement approach, aiding internal decision support, is part of the MACS area.

Since, according to the MACS literature, PMS allow managers to take decisions that improve performance (Simons, 2000), we assume that it is also the case more specifically for HC measures. Nevertheless, since Gates (2004) showed that the more advanced effectiveness and impact HC measures defined by Boudreau and Ramstad (2003) are not widespread yet within companies, we consider the stage of HC measure implementation. This leads to our *H1*:

- H1.* According to HR managers, the more advanced the company is in the implementation of HC measures, the higher the performance.

The "fit" between strategy and HC measures

The literature indicates that the type of strategy a company pursues impacts the MACS that it implements (Chenhall, 2003; Hartmann and Moers, 1999; Ittner and Larcker, 1997; Langfield-Smith, 1997, 2007). Most of the studies on management control systems and strategy have used one of the three following typologies, presented as continua. A first continuum opposes Miles and Snow's (1978) prospectors to defenders, analyzers falling in between and reactors being unstable organizational solutions. A second typology opposes Porter's (1980) competitive strategies, namely differentiation against cost-leadership, focus being a specific strategy applied to a niche and using one of the two previous ones. Finally, other studies following Govindarajan and Gupta (1985) oppose "build" to "harvest" strategic missions, with "hold" somewhere in between and "divest" being a specific situation.

These typologies are close to each other and are often considered as equivalent in MACS studies where two types are eventually retained: prospector/build/differentiation opposed to defender/harvest/cost-leadership (Chenhall, 2003; Fisher, 1995; Langfield-Smith, 1997).

Prospectors/differentiators try to build their strategic position and gain new markets by developing products and/or services which are perceived as unique by customers.

This product/service leadership is acquired through continuous innovation and creativity. On the other hand, defenders/cost-leaders offer products and/or services with no unique features but at a low price. This competitive advantage is obtained through a tight control of costs (Miles and Snow, 1978; Porter, 1980). The MACS literature shows that companies which follow a cost-leadership strategy tend to use centralized, standardized, and stable control processes, while those following a differentiation strategy encourage innovation by implementing decentralized, flexible, and less formal MACS (Auzair and Langfield-Smith, 2005; Govindarajan, 1988; Govindarajan and Fisher, 1990; Govindarajan and Gupta, 1985; Gupta, 1987; van der Stede, 2000).

The “fit” between strategy and MACS specifically applies to PMS. According to the literature in this area, the improvement of PMS can be accomplished in two ways: diversity of indicators or alignment of indicators with strategy (Ittner *et al.*, 2003; van der Stede *et al.*, 2006). The diversity approach states that a variety of measures should be used in order to motivate employees to pay attention to multiple aspects of their activities (Lillis, 2002). On the other hand, alignment considers that performance is enhanced when PMS are designed to translate strategic goals into consistently selected performance indicators (Burney and Widener, 2007; Chenhall, 2005; Ittner *et al.*, 2003; Kaplan and Norton, 2004; Widener, 2006).

This “fit” between strategy and performance measures should thus also concern HCM and organizations should implement HCM that are aligned with strategy. Indeed, there are attempts to measure and link to strategy both the activities of the HRs function as well as those of the entire workforce. Becker *et al.* (2001) established a process to link measures of HR functional activities to a company’s strategic goals. The process requires HR professionals to create a strategy map, identify HR deliverables within the strategy map, develop valid measures of HR deliverables and align them with strategy, then implement management by measurement. To enhance value creation requires HR to seek causal logic specifying how HR activities contribute to balanced scorecard goals (customer, internal process, financial, learning, and growth). The key question is: how do HR activities (selection, recruitment, retention, rewards, etc.) support the non-HR drivers in the balanced scorecard? The authors cite as an example of a key performance driver the timeliness of marketable new product innovations. Related HR activities that enable this driver would include rewarding marketable innovations, timely recruitment of technical expertise, and providing incentives to increase retention. Once this causal logic between HR activities and non-HR drivers in the balanced scorecard is established, then appropriate HCM can better monitor the value HR adds to the company.

Huselid *et al.* (2005b) extend the strategic connection from HR functional activities to all workforce activities. At the heart of their approach are a series of workforce attitudes and behaviors that fit three strategies: cost, innovation, and customer intimacy. For cost, appropriate behaviors entail short-term focus, process-driven, dedication to the organization, and low level of risk-taking. Appropriate behaviors would encompass relatively repetitive and predictable actions, and working to fit in. On the other hand, appropriate attitudes to measure and promote innovation would include higher tolerance for ambiguity, greater degree of risk-taking, anti-bureaucratic, and driven by learning. Typical behaviors would include problem solving; challenging one another; and creativity.

If organizations want to align HCM with strategy, one can assume that they are interested in measures which are consistent with strategy. In other words, different strategies should lead HR professionals to be interested in different HC measures. More precisely, differentiators should be interested in HC indicators measuring employees' innovative and creative capabilities, whereas cost-leaders should be interested in HCM measuring employees' ability to manage costs. Hence, our *H2a* and *H2b*:

H2a. In companies following a differentiation strategy, HR managers are interested in HC indicators measuring employees' capacity to innovate.

H2b. In companies following a cost-leadership strategy, HR managers are interested in HC indicators measuring employees' capacity to manage costs efficiently.

Research method

Sample

This study is part of a research project done in collaboration with The Conference Board [2]. It includes a qualitative investigation using interviews with six HC metrics project managers, as well as a quantitative analysis of survey questionnaire data.

The qualitative investigation was conducted with members of The Conference Board's two working groups on HC measurement (35 members in group 1 and 16 members in group 2). Each group met three times. The process was organized as follows: first, prior to the initial meetings of the two groups, we contacted the members to ask them what they considered to be important issues in HCM [3]. Second, based on these discussions, we designed semi-structured surveys that were handed out at the first meetings (see Appendix). Third, out of the 51 participants in the two working groups, we selected six (four from group 1 and two from group 2) to interview based on their advanced stage of HCM implementation and their ability therefore to discuss the entire process of selection, implementation and alignment of HCM with strategy. Since the 51 members completed the semi-structured surveys rapidly in a group session during the meeting, we decided to probe more deeply the specific answers provided by these six members during individual follow-up interviews.

The purpose of the six interviews was to collect additional information about the questions in the same semi-structured survey provided in the Appendix to understand the challenges and solutions that these HCM project managers faced and to prepare the final survey questionnaire in terms of the issues to be addressed. We then pre-tested our draft survey for clarity and sense with a professor, renowned as an expert in HCM measurement, and with three HCM project directors in large companies from a previous working group. (These three HCM project directors did not figure among the final sample of survey respondents.) A number of our survey questions were based on measures used in previous research, while several new questions were created for this research effort. Finally, we reviewed our interview notes after we collected and analyzed the quantitative survey results in order to interpret better our quantitative results and to illustrate our results with citations[4] in our discussion section.

The quantitative data were collected through a two-step process. First, hard copy questionnaires were distributed at the last meeting of each of The Conference Board's working groups. After follow-up e-mails, 35 out of the 51 members returned the completed survey (a 69 percent response rate). Second, 400 surveys were sent via e-mail

(as well as a web link to complete the survey on-line) to members of The Conference Board's HR membership networks, followed by a reminder e-mail five weeks later. A total of 69 surveys were returned for a response rate of 17 percent. A total of 104 surveys were thus collected from HR professionals (a 23 percent response rate).

Because the data were collected from two different groups, we tested for differences between these two groups and did not find any.

The Conference Board's membership includes both American *Fortune 500* and large European companies. Of the respondent companies, 77 percent are headquartered in North America; 16 percent in Europe; and 7 percent in the rest of the world. The sample consists of many large companies: 46 percent had revenues over \$5 billion; 30 percent from \$1 to \$5 billion and 24 percent under \$1 billion. As for the number of employees, 24 percent have over 50,000 employees; 44 percent between 5,000 up to 50,000; and 32 percent, less than 5,000. Respondent companies were widely distributed across industry sectors: 26 percent from manufacturing; 35 percent from services; 21 percent from financial services; 8 percent from energy and utilities; and 10 percent among other industries.

Measurement of variables

The survey includes questions on stage of implementation of HCM, performance, strategy, and interest of HR managers in HCM. (A copy of the questions is provided in the Appendix).

Stage of implementation of HC measures (STAGE). We used Boudreau and Ramstad's (2003, 2005) categories (i.e. efficiency, effectiveness, and impact indicators) presented in the literature review to measure this variable. Using a five-point scale question, we asked respondents at what stage their company is in implementing HC measures. While 2 percent indicate that they do not measure HC and 27.7 percent declare that they are starting working on it, 27.7 percent have efficiency measures, 35.6 percent have efficiency and effectiveness measures, but 7 percent only combine efficiency, effectiveness, and impact metrics ($\mu = 3.18$, $\sigma = 0.98$).

Our approach is different from previous research because we asked respondents for their perception of the stage of HCM development rather than measuring the number of HCM chosen. In effect, no research or professional evidence indicates that the number of HCM reflects the quality of the HC measurement system. On the contrary, we noted that the most advanced firms reduce the number of HCM indicators (testimony from the Conference Board working group). This anecdotal information is confirmed by our data in which we observed that the number of HCM used from a list of 15 proposed measures is negatively correlated with the stage of HCM implementation ($R^2 = -0.290$, $p < 0.01$).

Moreover, the number of HCM may depend on the context. Contingency literature demonstrates that management control systems and PMS are context-dependent. In other words, what we seek to measure with this variable is the level of perceived quality that the HCM system has achieved. If the respondent checks that the system is at an advanced stage of implementation, she or he considers that there is not much more to do to develop or improve the system of indicators and that it approaches the expected level of quality.

Although this variable is measured by one single item, which may pose a problem of validity, none of the six HR professionals interviewed in the pre-test process had

difficulty understanding the definition or incremental nature of efficiency, effectiveness, or impact HCM. We thus are confident that this variable measures in a satisfying way the perceived stage of implementation of HC measures.

Performance (PERF). Survey studies have used many different performance measures (for an illustration, see van der Stede *et al.*, 2007). We selected Huang's (2001) eight-item question because it had been previously used with HR managers in a study on HR strategy.

Since performance is measured based on respondents' perceptions, it may be biased [5]. However, studies have shown that when objectives measures are not available, subjective measures can be good proxies (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1987).

We performed a component principal analysis to reduce the data. After deleting two variables with communalities below 0.50 (Hair *et al.*, 2006), we observed that the six remaining variables all loaded on a single factor which explained 76 percent of the variance (Table I). The Cronbach's alpha for this measure is 0.94, well above the generally agreed upon lower limit of 0.70 (Hair *et al.*, 2006). We thus constructed a performance index by averaging the scores on each item ($\mu = 3.73$, $\sigma = 0.92$).

Strategy (STRAT). Langfield-Smith (2007) shows that many different ways of operationalizing strategy have been used in the literature and that they all have weaknesses. Faced with this situation, we used the percentage of differentiation as the single and simple measure of strategy, i.e. we asked respondents to indicate the percentage of their sales accounted for by products representing use of a low cost or differentiation strategy, the total amounting to 100 percent. This measure avoids some of the pitfalls mentioned by Langfield-Smith (2007). First, it acknowledges the possible coexistence of different competitive strategies; second, it avoids the circularity problem of testing the association between strategy and variables (i.e. interest in HCM) that constitute the basis for the strategy types. Also, as Auzair and Langfield-Smith (2005) explained, this approach has the advantage of being easily operationalized and understandable by managers. In addition, van der Stede (2001) found this variable to be significantly correlated to the relative strategic position of business units measured on five items. However, this measure has limitations that must be kept in mind when interpreting the results. The question clearly refers to realized, as opposed to intended, strategy since it asks about current percentage of differentiation. Moreover, a cross-sectional survey study

Performance items Respondents' degree of agreement regarding their company's performance over the last three years:	Factor	Communalities
Your overall business performance is high compared to that of others in the same industry	0.842	0.710
You have gained market share relative to your competitors	0.846	0.716
Your profit growth compares favorably with that of your competitors	0.882	0.778
Your return on investments compares favorably with that of your competitors	0.864	0.746
Your sales growth compares favorably with that of your competitors	0.901	0.812
Your return on sales is highly satisfactory	0.883	0.779
Percentage of variance	75.66	
Cronbach α	0.94	

Table I.
Factor analysis of the
variables measuring
performance

does not recognize that the current situation may just reflect a stage into a long strategic change process, not an achieved objective. It would be more interesting to associate interest for HC measures with intended strategy.

In our sample, the percentage of differentiation varies from 10 to 90 percent, with a mean of 68 percent and a standard deviation of 23 percent.

Interest in HC measures (EFFI and INNOV). To measure this variable, we designed a question listing eight categories of HCM targeting innovation or cost reduction. Looking for a measure related to strategy, we first reviewed previous studies linking HC measures with strategy (Becker *et al.*, 2001; Gates, 2004; Huselid *et al.*, 2005b; Lawler *et al.*, 2006) and identified eight categories that appeared to be significant. Discussions during the working groups' meetings, as well as with the six interviewees confirmed the relevance of these categories. We thus kept them to design the eight-item question. Specifically, we asked respondents to what extent would each of these eight HCM interest their company (on a five-point scale from 1: "not at all" to 5: "extremely").

In order to identify the underlying structure of this question and to summarize the data, we used a principal component analysis. After a first analysis, we removed two variables with communalities smaller than 0.50 (Hair *et al.*, 2006). Table II shows the result of the principal component analysis applied to the six remaining variables, after a varimax rotation. As expected, two factors were extracted accounting for 72 percent of the variance (Table II). Factor 1 can be interpreted as the interest in HC indicators measuring the capacity of employees to innovate, while Factor 2 represents the interest in HC metrics measuring the ability of employees to manage costs efficiently. The Cronbach's alphas for these two factors are, respectively, 0.79 and 0.83, above the generally agreed upon lower limit of .70 (Hair *et al.*, 2006).

One can note that the item measuring teamwork skills loads about the same on each factor. Indeed, teamwork skills can be used for innovation (as in project teams for example) or for managing costs (as in kaizen costing for example). It is thus not surprising that this variable does not load on a single factor.

To account for this and to have a better method for data reduction compared to the use of summated scales (Hair *et al.*, 2006), we used factor scores to generate two new variables, INNOV and EFFI, corresponding, respectively, to Factors 1 and 2. INNOV and EFFI are standardized variables ($\mu = 0$, $\sigma = 1$). Because they were determined after an orthogonal rotation, they are also totally uncorrelated.

Note that what we are measuring here is the respondents' interest in the implementation of new indicators, whether for the efficiency or innovation category.

Item measures	Factor 1 INNOV	Factor 2 EFFI	Communalities
Capacity to innovate	0.825	0.071	0.685
Capacity to identify new opportunities	0.870	0.214	0.802
Teamwork skills	0.556	0.497	0.556
Organization change efforts	0.693	0.440	0.673
Employees cost-conscious attitudes	0.124	0.913	0.849
Ability of employees to reduce costs	0.263	0.842	0.777
Percentage of variance	55.70	16.70	
Cronbach α	0.790	0.825	

Table II.
Factor analysis of the
interest of HR managers
in HCM

We are not measuring whether the company's strategy impacts the HCM already in use. This approach did not seem appropriate for three reasons. First, Gates (2004) reported that many organizations have not yet fully developed new HC measures compared to their use of traditional measures of productivity, costs, and employee turnover. Consequently, measuring the HCM already in use did not seem appropriate. Second, no control system is definitely perfect. It always needs to be improved or even sometimes changed, in particular to take into account the company's strategy and its evolution. Asking respondents about the necessary adjustments or changes therefore seems to be a more relevant approach. Finally, what we would like to know is whether HR managers are strategy-conscious and strategy-oriented when they select or create their own HC measures. To study their potential awareness or orientation, we need to measure their perception of strategy. Moreover, given the level of respondents' responsibilities, one might think that they know their company's strategy and that their perception is not biased (or at least only slightly).

Results and discussion

To the extent that the three hypotheses are relatively independent, we are analyzing together the quantitative and qualitative results pertaining to each hypothesis.

All the variables used in this study, except EFFI, have a non-normal distribution. This leads us to use nonparametric correlations (Spearman's Rho) to test our hypotheses. Findings are shown in Figure 1.

The impact of the stage of implementation of HCM on performance

H1 considers that, according to HR managers' perceptions, the more advanced a company is in the development of HC measures, the higher the performance. Figure 1 shows a significant positive correlation between STAGE and PERF ($R^2 = 0.280$, $p < 0.01$). H1 is supported. Thus, our findings support the idea in favor of using HCM to manage performance drivers.

Several comments from HCM project managers illustrate why the stage of HCM implementation is significant for delivering performance. In particular, the implementation and use of HCM help managers to focus on the HC component of the performance:

	μ	σ	PERF	STAGE	STRAT	INNOV	EFFI
PERF	3.73	0.92	1				
STAGE	3.18	0.98	0.280**	1			
STRAT	68.1%	22.6%	0.279**	-0.047	1		
INNOV	0.00	1.00	0.114	-0.016	0.297**	1	
EFFI	0.00	1.00	-0.099	-0.094	-0.193*	-0.093	1

Notes: * $p < 0.05$ (one-tailed); ** $p < 0.01$ (one-tailed)

Figure 1.
Nonparametric correlations between variables (Spearman's Rho)

The new director intends to use HC metrics in a dashboard to open each monthly meeting with the HR managers in the businesses. This dashboard will be used as a diagnostic tool to help information-driven decision making.

The scorecard is used by HR and division leadership to assess progress against human capital trending goals set by the senior team.

After an initial attempt to build an HR scorecard failed due to lack of consultation with HR and business managers, a second effort produced much better results by inserting HCM into managers' business plans and embedding them in their reporting process to senior management. Once they were in managers' performance scorecard, HCM entered into their line of sight and results improved.

As division leaders became more familiar with human capital metrics, they started to ask more informed questions and be open to more suggestions around possible solutions that came out of the data.

To help managers pay attention to HCM, these measures are taken into account in their performance evaluation:

We can hold divisions more accountable for their HC metrics (e.g. turnover, transfers, etc.) in order to compel them to utilize this data more regularly.

Our performance evaluation process relies heavily on HC metrics.

Right now, core KPIs are reviewed on an annual basis by a subcommittee of the Management Board. Some business units have their own dashboards. However, HC metrics are still at a high level. We need the ability to cascade them downward to increase their impact. Once the cascading of the balanced scorecard framework is possible, there should be more accountability.

Strategy and interest for various HCM

If organizations are aware of the importance of HC measures, the question is: are they interested in the implementation of HC indicators of any type or do they want to "fit" HC measures with strategy? *H2* addresses this question. It posits that in companies following a differentiation strategy, HR managers will be interested in HC indicators measuring employees' ability to innovate, while in those following a cost-leadership strategy HR managers will be interested in HC indicators measuring employees' ability to lower costs. Since strategy is measured by the percentage of sales achieved through differentiation, *H2a* assumes a positive correlation between STRAT and the HR managers' interest for employees' innovative skills variable (INNOV), while *H2b* suggests a negative one between STRAT and the interest for employees' cost-consciousness variable (EFFI). Figure 1 shows that *H2a* and *H2b* are both supported. The correlation between STRAT and INNOV is positive and significant ($R^2 = 0.297, p < 0.01$). The correlation between STRAT and EFFI is negative and significant ($R^2 = -0.193, p < 0.05$). Thus, HR managers seem to be in favor of a "fit" between strategy and the type of HC measures to implement.

Several comments drawn from our interviews confirm that HR managers are interested in linking HC measures to strategy:

We are trying to develop a three-level HCM scorecard. The first level will consist of company-wide basic core key performance indicators for the entire workforce. The second level will be more strategic, linking HCM to next year's business units' development plans. The third level will be a top-down HCM effort focused on talent and performance

management for a selected group of employees. So this requires that we develop a high degree of strategic alignment for the second and third level of HCM.

Now that we moved into the global diversity and talent management unit, we are developing HCM in line with the initiatives of the organizational development staff.

Yet implementing HC measures which are aligned with strategy is not an easy task:

However, linking HCM with other strategic data in our balanced scorecard (customer, business operational, financial) is not as easy as one might think. Also, if we focus on the 5-10 percent of strategically important positions, we need to develop additional capabilities to measure and manage this talent.

One difficulty may come from the fact that HCM can already be in use by business managers. During the interviews and the working group discussions, HR metrics project leaders explained that, prior to the selection and implementation of company-wide HCM, they often have to “inventory” the many HCM (sometimes over 100) that already exist in business units. Our interviewees acknowledged that the task of selecting a manageable number of HCM (15-20) that can be harmonized across the various business units is a challenging negotiation process which constitutes a large part of the HR metrics project leader’s job.

In order to facilitate the objective of linking HCM to strategy, the team in charge of HCM development must be adequately organized, have the right skills, and provided with the right tools:

Our HCM unit changed its skill base radically this year. Instead of five junior techies and data crunchers, we now have three data analysts and reporting people. We will also recruit another person to translate strategy into HCM requirements and metrics.

Lots of processes are needed – HR is coming to grips with this intellectually, but it is difficult to accept that it takes time and resources to build. There needs to be automation behind this to make it sustainable. An *ad hoc* report is not sustainable.

In sum, HR managers do want to align HCM systems with their strategy. This raises questions about the HC of the HR professionals themselves, in other words, about their competencies and experience that would allow them to understand and analyze the strategy and then create relevant HCM. Management controllers no doubt have a role to play here, given their experience with strategic PMS and their capacity to work with strategy maps.

Conclusion

Given the critical roles that both HC and PMS play in value creation and achieving strategic objectives, the choice and implementation of HC measures has stimulated numerous research studies in several different management disciplines, in particular strategy, HR management and MACS. This study contributes to this cross-disciplinary effort by analyzing the links between HC measures, performance, and strategy, including the role played by HR managers.

Our results show that, according to HR managers’ perceptions, performance is positively associated to the stage of implementation of HCM. The development of HCM systems enable an organization to measure and, hopefully, to manage better its performance. The results also confirm that HR managers would like to develop their

HC measures to be consistent with the strategy they perceived to be in place in their company. In companies following a differentiation strategy, HR managers are interested in HC indicators measuring employees' innovative capacities, whereas in cost-leader companies, HR managers prefer HC metrics measuring employees' ability to manage costs. This confirms the "fit" literature that maintains that PMS are aligned with strategy (Ittner *et al.*, 2003). The literature about "fit" (or alignment) concerns primarily non-financial performance measures, and so can be extended more specifically to HCM.

Thus, based on our results, we believe that HR professionals can contribute to create or customize strategic HC measures and implement them within the company's strategic performance measurement system to enhance performance. The more knowledge that HR professionals have about what HC enablers help implement strategy, the more they can focus on customizing HC measures aligned with strategy.

However, as with many studies, this one has limitations. First, the sample is based on HR members of The Conference Board who may not be representative of all HR professionals. In addition, the sample includes some members having participated in a specific working group. Thus, randomness is not ensured and the external validity of our results cannot be guaranteed. Second, we collected quantitative data through a survey using self-reported measures. Although we were interested in HR managers' opinions, these self-reported measures may be biased. This may be a problem, in particular, for measures based on a single item. Third, as a consequence, our results are based on HR managers' perceptions. Further research using other managers' perceptions, as well as objective measures, are needed to extend our results to a more general level. Fourth, this study is cross-sectional and the correlations found should not be interpreted as cause-and-effect relations. For example, we measured performance over the three-year preceding the survey. A more interesting approach, and a direction for future research, would be to conduct a longitudinal study to observe whether the implementation of HCM leads to a subsequent improvement of performance. Fifth, we did not control for the specific impact of contingency factors. For example, research points to the importance of external factors, such as technology exhaustion and expansion beyond national markets, in the creation and performance of emergent innovative capabilities (Ahuja and Katila, 2004). On the other hand, Grant (1998) and Hamel and Prahalad (1994) emphasize internal factors, such as a company's historical development or its ability to bundle core competencies well. These external and internal factors could also be taken into account.

Despite these limitations, this study makes several contributions. First, it underscores both to academics and professionals the critical role that HC measures play in delivering performance. While this contribution is based on HR professionals' perceptions, the results were corroborated with objective data on a sub-set of the sample. Efforts to develop PMS and frameworks such as the balanced scorecard should be maintained.

The second contribution is to show that HR managers are clearly conscious that HC measures should be aligned with strategy. The message about the importance of "fit" between strategy and PMS has been absorbed. It remains to analyze in detail the cause and effect relationships between HC factors and strategic objectives. This analysis can be facilitated with tools such as strategy maps. Even if each company is unique and should have its own HC measures, general HCM configurations could help them create their HCM system faster.

A third contribution is to demonstrate to both HR managers and MACS experts that they have a common interest to collaborate to implement HCM: the former with their knowledge of the various aspects of HC, and the latter with their experience in designing and implementing PMS. This necessary collaboration is illustrated with the following statement by our interviewees:

Company P killed the dashboard because the HR community saw very little value added coming from it and a lot of extra work. If the dashboard is not designed with HR's view of where there are problems, they won't use it.

Further research is needed to explore this area. One direction is to study how HR professionals, MACS experts, as well as business units managers work together to select and implement HCM. A longitudinal study would be an interesting approach to observe and understand better how these functions collaborate.

Another direction for future research is to focus on those sub-groups which are most critical for a particular strategy. Huselid *et al.* (2005a), referring to "A players for A positions", suggest that HC strategy should be tailored to specific business strategy requirements so that it is possible to separate strategic value-creating elements of the workforce from the operational. They recommend that resources and HC metrics should be differentiated in keeping with this strategic/operational distinction.

Additional cross-sectional studies, carried out on larger and more random samples of companies, are also needed, especially to identify the influence of external as well as internal contingency factors. They should also include objective measures of performance to analyze whether and under what conditions, the implementation of HCM is related to performance.

In sum, there are still promising areas to study if we want to know more about how HCM are related to strategy and how they impact performance.

Notes

1. Earlier attempts with utility analysis also encouraged the HR profession to quantify HC contribution to performance (Brogden, 1949; Cronbach and Gleser, 1965; Raju *et al.*, 1990).
2. A non-for-profit organization, The Conference Board works as a global, independent membership organization in the public interest with offices in New York, Brussels, Hong Kong, and Beijing. It conducts research, convenes conferences, makes forecasts, assesses trends, publishes information and analysis, and brings executives together to learn from one another.
3. The top two issues were: first, aligning HR metrics with strategic objectives; and second, incorporating HC metrics into existing planning and measurement efforts.
4. Citations follow The Conference Board's procedures. These require that all potential quotes are first crafted from notes taken during the interviews and sent to the interviewees for revision and written approval. Several interviewees did revise the citations while others signed that the citation was accurate.
5. However, based on respondents' names, when indicated, we were able to identify 34 companies and to collect objective measures of performance over the three-year period preceding the survey, from the Thomson One Banker database. We then correlated objective measures, both in absolute and relative (i.e. compared to the sector) terms, with the corresponding items of perceived performance included in the questionnaire. Correlations are positive for absolute measures of "Net income growth" ($p = 0.055$); "return on investment (ROI)" ($p = 0.113$); "Sales growth" ($p = 0.027$); and "return on sales (ROS)" ($p = 0.039$). They are also positive for relative measures: "Market share growth" ($p = 0.046$); "Net income growth" ($p = 0.108$); "ROI"

($p = 0.057$); “Sales growth” ($p = 0.092$); and “ROS” ($p = 0.301$). Although some of these correlations are not significant, these findings provide some confidence as to the reliability of respondents’ perceptions of performance. We are grateful to an anonymous reviewer for having motivated these additional analyses.

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Appendix

Semi-structured surveys used during the working groups meetings

Selection of HCM

1. What criteria are used in the selection process?
2. How does your company prioritize the HC metrics that it uses?
3. Does your company test HC metrics in pilot programs? Yes/no

Alignment of HCM

1. What processes does your company use to align its HC measures to business objectives?
2. Does it include HC measures in a balanced scorecard or dashboard? Yes/no
3. If yes, does it link its HC measures with other quadrants of the balanced scorecard? (customer, financial, and internal processes)
4. Which HC metrics does your company use in its balanced scorecards/dashboards for its different audiences? Executives?/management?/HR leadership (to run the HR division)?/HR professionals (recruiters, trainers, etc.)?
5. What lessons have you learned from alignment of HC metrics with business objectives?

Organizational engagement

1. How does your company establish accountability for HC metrics between business managers and HR? Please provide an example.
2. How has your company encouraged HR generalists to adopt HC metrics?
3. How has your company encouraged business managers to adopt HC metrics?
4. Which HC metrics do HR generalists find most useful? Why?
5. Which HC metrics do business managers find most useful? Why?
6. Has your company introduced HC metrics into business managers bonus plans? Yes/no. If Yes, what has been the reaction?
7. In your company, what challenges limit the impact of HC metrics?
8. If your company has experienced failure (or less than success) with HC metrics, what have you done to meet the setbacks?

Measurement of "stage of implementation of HC measures"

At what stage is your company in implementing its HC measures?

1. Our company does not measure HC.
2. We are working on defining HC measures and beginning to collect data.
3. We have efficiency (time and cost) HC measures in place.
4. We have efficiency and effectiveness (ability, motivation, and performance) HC measures in place.
5. We have efficiency, effectiveness and impact (on business process or strategic outcome) HC measures in place.

Measurement of “performance”

Please indicate the extent to which you agree with the following statements regarding your company’s performance over the last three years

	Strongly disagree			Strongly agree	
	1	2	3	4	5
Your overall business performance is high compared to that of others in the same industry	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Your staff turnover is highly satisfactory	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
You have gained market share relative to your competitors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Your profit growth compares favorably with that of your competitors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Your return on investment compares favorably with that of your competitors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Your sales growth compares favorably with that of your competitors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Your return on sales is highly satisfactory	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Staff morale in your company compares favorably with that of your competitors	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Measurement of “strategy”

Basically, two ways of competing can be distinguished: cost leadership and differentiation. Cost leadership focuses on achieving low cost relative to competitors. Differentiation focuses on creating something that is perceived as unique through superior product features, customer service, brand image, etc. Please indicate the percentage of your sales accounted for by products representing use of either low-cost or differentiation strategy. Your answers should total 100%.

- (a) Low cost _____ %
 - (b) Differentiation _____ %
- 100 %

Measurement of “interest in HC measures”

To what extent would human capital metrics measuring the following items interest your company?
Not at all Slightly Moderately Significantly Extremely

New specific measures of employee productivity _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Entrepreneurial skills _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Capacity to innovate _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Employees’ cost-conscious attitudes _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Capacity to identify new opportunities _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Teamwork skills _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Organization change efforts _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Ability of employees to reduce cost _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

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