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Strategic HRM Measurement in the 21st Century: From Justifying HR to Strategic Talent Leadership

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Abstract

Measurement will be vital to the evolution of human resource management in the coming century, but in this chapter we propose that it will not be measurement as usual. The future of HRM will require a decision science for talent resources that is as logical, reliable, consistent and flexible as Finance, the decision science for financial resources, and Marketing, the decision science for customer resources. In this chapter we describe the elements of this new decision science, which we call "Talentship," and its implications for the future of strategic HR measurement. Using this framework, we review leading measurement approaches, describe their contributions, and identify the significant opportunities for improvement in future HR measurement systems.

"Not everything that can be counted counts, and not everything that counts can be counted."

Introduction

The beginning of the 21st century reveals both the promise and the curse of human resource management (HRM) measurement.

First the good news.

The accounting and management professions recognize that traditional corporate measurement systems must be enhanced to account for intangibles in a knowledge-based economy (Brookings Institute 2000). Greater corporate accountability for human and intellectual capital is now a constant drumbeat (e.g., Boudreau & Ramstad, 1999). Concepts such as "knowledge, intellect, creativity, innovation, capabilities, commitment," and even "fun" have become part of the language of business, in strategy, finance, operations and marketing. People issues are "at the table," and being at the table means answering tough questions from shareholders, investment analysts, communities, employment candidates and employees, such as:

- "Is decreasing cost-per-hire good, or are we tapping pools of less-desirable applicants who are easier to attract?"

- "If our employees complete 40 hours of training per year, are we building essential capabilities or just filling seats in classes?"

- "Do we have the talent needed to succeed?"

Organizations must increasingly demonstrate, with data, that their human resource strategies significantly enhance competitive advantage, not simply that they are efficient or "best-in-class".

This unprecedented attention to human capital has been matched by an explosion of human capital data and measurement approaches. HR information systems accelerate the trend, continually lowering the cost and increasing the speed of data storage and delivery. It is now quite feasible to obtain hundreds of human capital measures in an eyeblink, and to conduct equally dizzying "cuts" and trends. Individual managers can choose to examine everything from

headcount to the number of resumes received, to turnover to employee attitudes broken down

by division, time, region or diversity category, and to customize the information in any way they

wish, often 24 hours a day through a web portal. As one manager jokingly remarked to us, "Our

future data systems can analyze employee satisfaction by eye color if we wanted … but why

would anyone want to?"

Which brings us to the potential bad news.

The explosion of measurement technologies and HRM data poses a significant risk.

Information overload, naiveté and unmet expectations could stifle the 21ˢᵗ century evolution of

the HRM profession before it begins. This dilemma is not intractable, but it is obviously not

solved by developing more measures. The problem is more fundamental. This next

evolutionary stage for HR is to develop a true decision science for talent, built on today's HRM

professional practices (Boudreau & Ramstad, in press; 2002). In this chapter we suggest the

implications of such a decision science for HR measures.

Measures Must Support "Talentship," a Decision Science for Talent

There are at least three markets that firms must compete within in order to be

successful: capital market, the customer/product market and the talent market. Each of these

markets has a wealth of measures associated with them. However, in each of the other

markets, there is a clear distinction between the professional practices associated with the

market and the decision science that supports it. Within the capital markets, the practices of

accounting are supported by the decision science tools of finance. Likewise, the professional

practice of sales is augmented and supported with the decision science of marketing. As we

have noted (Boudreau & Ramstad, in press; 2002), HR has a rich set of professional practices,

but lacks a decision science. We have proposed that now is the right time for such a science to

emerge, and we have called that science, "Talentship".

What does a decision science do? It provides a logical, reliable and consistent – but

flexible – framework that enhances decisions about a key resource, wherever those decisions

are made. A decision sciences does not rigidly prescribe actions, but rather provides a system

to guide, identify, analyze and enhance key decisions (Boudreau & Ramstad, 2002). A decision science has particular implications for information systems and measurement techniques.

Consider the decision science of finance, perhaps the most pervasive organizational framework. The DuPont model we are familiar with today emerged in the early 1900's. It used the data from the accounting processes and provided a framework to allocate financial capital to diverse business units using more than the traditional accounting measure of profit. This decision framework showed that business units with lower profit margins could easily have higher returns on invested capital, and showed how business units could improve their return on capital even without increasing profit margins. Making decisions by allocating financial resources to the areas of highest return on investment, not necessarily the highest profit, was revealed superior way to use financial capital for strategic success. Marketing is similar. Customer segmentation, for example, is a 20th-century development, and allowed organizations to allocate their resources not just equally to all customers, or to the customers with the highest sales, but rather to the customers with the greatest impact on the organization's competitive success.

Thus, finance creates organizational value by enhancing decisions that depend upon or impact *financial* resources. Marketing creates organizational value by enhancing decisions that depend on or impact *customer or product* resources. Finance and marketing provide reliable and deeply logical frameworks that show how financial and customer capital connect to sustainable strategic success for the organization, frameworks that support *strategic decisions* about financial and customer capital. Paradoxically, the most important decisions were *outside the profession itself.* Managers, employees, shareholders, and others learned how to reliably and consistently improve *their own decisions* about the financial and customer resources *wherever they are made.* Finance and marketing provide a "teachable point of view" (Tichy 1998), and they are ultimately evaluated not so much by the quality of their programs, or even by the quality of their measures, as by the quality of decisions about financial or customer resources – throughout the organization. Accounting and sales measures are inextricably

linked with these decision sciences. The decision science asks key questions that challenge

existing measures. This produces better measures, which led to better decisions and more

sophisticated questions. This synergy is not built by measurement or science alone, it is built

through measures that reflect a powerful and consistent logic, and vice versa. For example,

consider the power of the decision science of customer segmentation or yield management for

driving sophisticated marketing data.

To illustrate the point, consider the following question we often ask HR leaders during

workshops: "Would you like to have measurement systems as powerful and important as the

ones that are generated by finance? The answer is almost always a resounding, "Yes". Then

we ask the follow-up question, "How many of the financial reports tell you about the efficiency or

effectiveness of the accounting processes?" The answer is "Almost none!" The implication?

The accounting systems are powerful because they provide a decision framework for the

accounting data, a framework that guides and enhances the quality of decisions that affect

financial capital. Most of these are made by leaders who are not in the accounting department.

HR will never have measures that are equally significant so long as they focus on the activities

or benefits of the HR function or programs. To be strategically significant (e.g., relevant "at the

table") they must focus on and help improve talent decisions wherever they are made.

The contrast between the markets that have a decision science and HR is striking when

you consider the rapid rise of information technology over the past several years within

organizations. The explosion of the Internet and information technology has had much deeper

impact in finance and marketing because it was accelerated by sophisticated decision

frameworks. The logic of customer segmentation now allows organizations to tailor products

and services (even specific service encounters) to specific individual needs. The logic of global

currency trading has created financial markets today that adjust to arbitrage opportunities

virtually instantly, making markets much more efficient. By comparison, information technology

applied to HRM has resulted in significant efficiencies and enticing web-portal interfaces. But

the promise of such things as "mass-customization" in rewards and remuneration, or the

evolution of a true talent relations management system to rival the customer relations

management systems of marketing, has been largely unfulfilled. We believe that the

emergence of a talent decision science is a key to unlocking the potential of information

technology in HRM.

The lessons of marketing and finance teach that , the goal of a talent decision science

should be *"To increase the success of the organization by improving decisions that impact or*

depend on talent resources." We have coined the term "Talentship" to describe the new

decision science Decision support is different from professional practice. It means shifting the

primary focus from "providing practices, programs and services," toward "supporting strategic

talent decisions." It is an a key requirement for HR professionals to achieve true strategic

impact, and a useful touchstone in charting the future of HRM measurement.

Decisions … the Key to Strategic HRM Measurement

It is common to assess HR customer satisfaction by asking key decision makers if they

like the HR measures, or if the HR measures seem "businesslike." Yet, it would seem rather

ludicrous to assess the financial analysis framework by asking whether business leaders liked it

(in fact, if they miss their numbers, they hate it!). The finance decision system is so logically

connected to key organizational outcomes, and so able to improve important decisions about

financial resources that it is accepted even when its message is unpleasant. So, the key

consideration in any human capital measurement system is its ability to *enhance decisions* by

articulating the logical connection between talent and organization outcomes. Measurement is

an essential building block of such a decision framework. In finance, rich bond rating systems

enabled the financial theorists to develop portfolio theory, to guide decisions about the risk and

return of sets of securities. So, the explosion of HR measures is a necessary condition for

developing talentship, but today's measures often lack a logical framework that articulates the

key connections between talent decisions and organizational strategic success.

The logic does not have to be complicated to be effective. Sears (Rucci, Kirn, & Quinn, 1998) adopted a relatively simple model of the retail value chain (i.e., making Sears a compelling place to work will affect store associates' behaviors, which create a compelling place to shop, which affects customer spending patterns, which create a compelling place to invest) that guided the choice and interpretation of hundreds of measures combining attitudes, employee behaviors, customer satisfaction, and financial success. Many of the measurements had existed for years, even decades, but were never linked in a compelling way until a clear mental model was established.

The HC BRidge™ Framework

Boudreau and Ramstad (in press, 2002) use the metaphor of a bridge to describe the linking elements between investments in HRM programs and sustainable strategic success. The HC BRidge™ framework is also useful for analyzing HRM measures (see Boudreau & Ramstad, in press for more detail). The framework is shown in Figure 1.

**Figure 1
HC BRidge™ Framework**

ANCHOR POINTS | LINKING ELEMENTS

Planning → | Execution ↑

Impact
- Sustainable Strategic Advantage
- Business Processes
- Talent Pools

Effectiveness
- Aligned Action
- Human Capacity

Efficiency
- HR Practices
- Investments
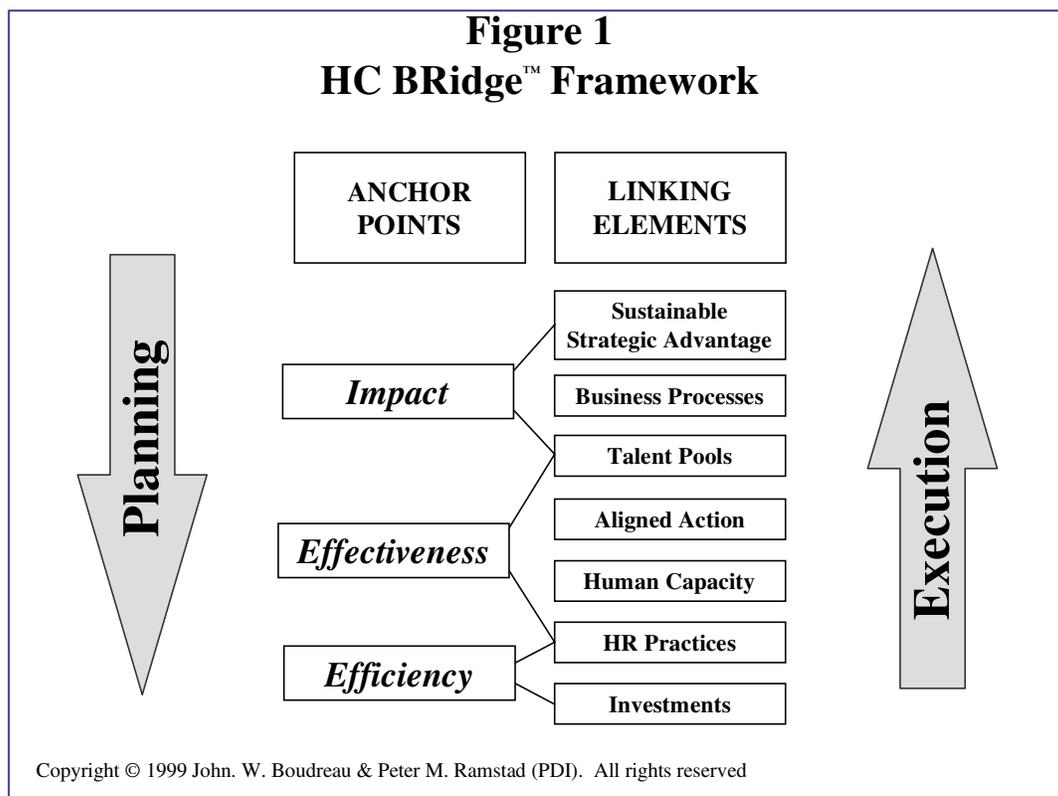
We will not cover the model in detail here, but the three anchor points will be useful.

These three anchor points because they are key components in virtually all highly-developed

business decision sciences, and most measurement systems strive to address them. With

regard to talent, they can be framed in terms of three key questions:

"Impact" asks, " What is the relationship between the changes in the quality of the talent

pools and our competitive success?" We find that most HR research and systems focus on the

average value of talent, with questions such as "Is the contribution of this talent important?"

However, it is often the *change* or *difference* in talent quality that is key. "Impact" asks

questions such as, "What difference does it make to have top performers versus simply average

performers in this role?" In the HC BRidge™ framework, we call roles with high impact "pivotal

roles," to capture this idea.

"Effectiveness" asks "What is the relationship between our HR practices and the quality

of our talent pools?" This includes how HR programs affect *capability* (can employees

contribute?), *opportunity* (do employees get the chance to contribute?), and *motivation* (do

employees want to contribute?), the elements of "Human Capacity" in Figure 1.

"Efficiency" asks, "What is the level and quality of HR practices we produce from the

resources that we spend?"

Figure 1 shows that there are linking elements within each of these anchor points that

further define the connections between HRM investments and strategic success. A more

detailed application of the HC BRidge™ framework to the strategic challenges of the Internet

can be found in Boudreau, Dunford & Ramstad (2001). Each linking element can be used to

define HRM measures, but we will focus here on the broader anchor points to map today's

measures, and then the future.

Today's HR Measurement Options

Table 1 shows four key categories and examples of today's HR measurements. Boudreau and Ramstad (in press) provide additional detail and references, and discuss several other categories, but these four will help us illustrate the state of today's HR measures. The last two columns of Table 1 describe the primary appeal of each category of measures, and the "tough questions" that reveal potential limitations or assumptions of each method.

Table 1
HR Measurement Alternatives

Measurement Approach	Example Measures	Primary Appeal	Tough Questions
Efficiency of HRM Operations	Cost-per-hire, time-to-fill, training costs, ratio of HR staff to total employees	Explicit currency-value calculations. Logic of cost-savings is easy to relate to accounting. Standardization makes benchmarking comparisons easier.	"Wouldn't outsourcing cut costs even more?" "Do these cost savings come at the price of workforce value?" "Why should our costs be the same as the industry?"
HR Activity and "Best Practice" Indexes	Human Capital Benchmarks Human Capital Index	HR practices are associated with familiar financial outcomes. Data from many organizations lends credibility. Suggests there may be practices or combinations that generally raise profits or sales, etc.	"What is the logic connecting these activities with such huge financial effects?" "Will the practices that worked in other organizations necessarily work in ours?" "Does having these practices mean they are implemented well?"
HR Dashboard or HR Scorecard	How the organization or HR function meets goals of "Customers, Financial markets, Operational excellence, and Learning"	Vast array of HR measures can be categorized. "Balanced Scorecard" concept is known to business leaders. Software allows users to customize analysis.	"Can this scorecard prove a connection between people and strategic outcomes?" "Which numbers and drill-downs are most critical to our success?"
Causal Chain	Models link employee attitudes to service behavior to customer responses to profit.	Useful logic linking employee variables to financial outcomes. Valuable for organizing and analyzing diverse data elements.	"Is this the best path from talent to profits?" "How do our HR practices work together?" "What logic can we use to find more connections like this?"

HRM Operations … Measuring Efficiency

The first row describes measures focused on "efficiency," as shown in Figure 1. These measures are usually expressed in "input-output" ratios such as the time to fill vacancies, turnover rates, turnover costs, and compensation budgets compared to total expenses (e.g., Fitz-enz, 1995). These approaches are compelling because they connect HR processes to accounting outcomes (dollars), and because they can show that HR operations achieve visible cost reductions, particularly when compared to other organizations. They are frequently a significant motivator for HR outsourcing. Many applications of six-sigma to HR tend to focus on such measures to detect opportunities to improve costs or speed. One of the major limitations of these types of measures is that they are not really HR measures at all – rather they are efficiency ratios that can be used to monitor overhead costs in nearly any staff function. As a result, efficiency-focused systems can omit the *value* of talent. Fixating on cost reduction can reject more expensive decision options that are the better value. For example, cost-per-hire can be reduced by cutting the number of selection activities, but this may well reduce validity and subsequent workforce quality. Efficiency-based measures alone, no matter how "financially" compelling, cannot reflect talent value. Finally, they focus almost exclusively on the HR function, and not the decisions made within the rest of the organization.

Measuring Effectiveness … Demonstrating the Effects of HR Practices

The next row, "HR Activity and Best-Practice Indexes" directly measure the association between the reported existence of human resource activities, such as merit pay, teams, valid selection, training, etc., and changes in financial outcomes such as profits and shareholder value creation (e.g., Becker & Huselid, 1998; Pfau & Kay, 2002). In terms of Figure 1, this approach attempts to directly associate the second-to-bottom box – HR practices to one element of the top box –financial measures of strategic success. Some results show strikingly strong associations between certain HR activities and financial outcomes, which has been used to justify investments in those activities. However, most existing research cannot prove that investing in HR activities *causes* superior financial outcomes (Cappelli & Neumark, 2001).

Another limitation of such measures is that they use one description of HR practices to represent an entire organization, when in reality HR practices vary significantly across divisions, geographic locations, etc. This may partly explain why managers in the same organization might inconsistently report HRM practices (Gerhart, Wright, McMahan & Snell, 2000). Also, such systems typically only measure the existence of practices, but not if such practices are implemented well. Even when there is an actual relationship, simply duplicating others' best practices may fail to differentiate the organization's competitive position.

These limitations can be seen by an analogy to advertising. It is quite likely that studies would show an association between financial performance and the presence of television advertising activity, perhaps even that advertising activity rises before financial outcomes rise. This would suggest that among organizations that compete where advertising matters, advertising decisions relate to financial outcomes. Would it mean that every organization should advertise on television? Obviously not.

Thus, these approaches shed some valuable light on the important question of whether HR activities relate to financial outcomes, and they have made important contributions to HRM research. However, even their strongest advocates agree that they do not measure the connections that explain why HRM practices might associate with financial outcomes, and they do not reflect or other key elements of strategic success. Because they focus on large publicly-traded companies, they may also fail to reflect different strategic environments. In terms of the HC BRidge™ framework of Figure 1, they leave unanswered whether and how groups of employees significantly affect key processes and outcomes.

HR Scorecards

The third row of Table 1 describes HR "scorecards" or "dashboards," inspired by Kaplan and Norton (1996), who proposed adding measures of "customer" (such as customer satisfaction, market share, etc.), "internal processes" (such as cycle time, quality and cost), and "learning and growth" (systems, organization procedures and people that contribute to competitive advantage) to traditional financial measures. HR scorecards include measures

designed to align and arrange measures into each of the four perspectives (Becker, Huselid & Ulrich, 2001). The GTE/Verizon HR Scorecard (Walker and MacDonald, 2001) offers a good example. Such approaches tie HR measures to a compelling business concept and, in principle, can articulate links between HR measures and strategic or financial outcomes.

Today's scorecards or "dashboards" built on data warehouses allow users to "drill down" using a potentially huge array of variables, customized to unique personal preferences. For example, HR training costs can be broken down by locations, course, diversity category, etc., and linked to attitudes, performance, and turnover. While impressive, in the hands of the unsophisticated, such approaches risk creating information overload, or, even worse, a false certainty about the connection between talent and strategic success. For example, one GTE/Verizon division used the scorecard to lower cost-per-hire and time-to-fill. But they did it by tapping applicant pools that turned out to be harder to train and keep, actually reducing unit performance. HR analysts later discovered this logic flaw (Walker and MacDonald, 2001), but the drill-down technology seldom provides the logical framework for users.

HR scorecards are also often limited by relegating HR to measuring only the "learning and growth" category, or by applying the four categories only to the HR function, calculating HR-function "financials" (e.g., HR program budgets), "customers" (e.g., HR client satisfaction surveys), "operational efficiency" (e.g., the yield rates of recruitment sources) and "learning and growth" (e.g., the qualifications of HR professionals). Both lead to measurement systems with little link to organizational outcomes.

When we work with scorecard designers, they note that the majority of scorecards measure only HR operations and activities, the elements of efficiency and effectiveness in Figure 1. Scorecards admirably draw attention to Impact, but the actual measurement strategic logic is often superficial, such as linking the organizational goal of "speed to customers" with the HR scorecard measure "faster time-to-fill," or linking the strategic goal of "global integration" with the HR scorecard measure of "number of cross-region assignments completed." Still, the scorecard design principle of connectedness has promise, as we shall see.

Causal-Chains

The bottom row of Table 1 describes *causal-chain analysis*, which focuses on measuring the specific links between HRM programs or individual characteristics and business process or outcomes. For example, Sears, Roebuck & Co., a large U.S. retailer, used data to connect the attitudes of store associates, their on-the-job behaviors, the responses of store customers, and the revenue performance of the stores (Rucci, Quinn, & Kim, 1998). This measurement approach offers tangible data and frameworks that actually measure the intervening links between human capacity (in this case store associate attitudes reflecting their commitment or motivation) and business outcomes (such as store revenues). In terms of Figure 1, causal-chain analysis comes closest to mapping all the linking elements.

The drawback is that all causal chains simplify reality. Yet, they are so compelling that they may motivate oversimplification. Finding that employee attitudes predict customer responses, organizations may invest heavily to maximize employee attitudes. Yet, at some point other factors (such as employee knowledge of products) become more important. Continuing to raise attitudes can actually be sub-optimal, even if it still produces small additional changes in business outcomes. It's important to have a logical framework that can reveal the new paths as they emerge.

HRM Measurement in the 21st Century

From Justifying HR Programs to Supporting Talent Decisions

Future HR measurement systems must be more than merely logical, attractive or even valid and reliable. It will not be enough merely to demonstrate that HRM programs have good effects, after the fact. Future measures must tangibly improve decisions about the talent that most affects strategic success. Future HR information and measurement professionals should become experts at identifying key talent decisions and the needs of those who make them, not just creating, improving and tracking the HR measures. The HR data warehouse team we worked with in one large multinational said, "We have built the most sophisticated turnover

tracking data and interface in the world. Now, we'll put it out there and see what our managers

do with it." Future HR professionals will more often *start* by analyzing how managers should

use data and make decisions, and only then devise frameworks and systems that effectively

improve them.

From Strategy Reflection to Strategy Integration

Today's HR measurement systems commonly *reflect* strategic or business outcomes,

but do not integrate talent with them. For example, in organizations that must grow profits, HR

measures efficient HR operations. Or, the organization must embrace digitization, so HR

measures the number of HR transactions on the web. Or, the organization must increase

solution-selling, so HR measures the amount of solution-selling pay bonuses for salespeople.

Certainly, such measures reflect the strategic concepts, but true strategy integration requires

identifying the "pivotal talent pools" that have the largest strategic effect, and then measuring

the changes in their actions that "move the needle" on key processes. For example, sales-

people do affect solution-selling, but often the key bottleneck is a lack of sufficient product

integration to offer solutions customers want. No amount of salesperson bonus payments can

fix a lack of integration. Future HR measures will better identify such bottlenecks, and how

improving the talent that affects them enhances success all along the value chain.

From Outsourcing for Efficiency to Informed Collaboration for Impact

If trends continue, a legacy of the 21ˢᵗ century will be significantly greater HR

outsourcing (e.g., Shelgren, 2001). Paradoxically, the more HR is outsourced, the more

important are the HR measures we describe here. Outsourcing contracts are governed by

measures. If the contract stipulates cost-per-hire or number-of-employee-calls-handled, that is

what will be delivered. Today, HR outsourcing contracts typically emphasize efficiency

measures because they are the most measurable. This is similar to the proverbial person who

lost their keys in the dark alley but looked for them by the lamppost, explaining "that's where the

light is." Measurement availability does not equal measurement usefulness. As we noted at the

beginning of this chapter "not everything that can be counted counts." Future HR measures will

have to do better. In our work, we find that decision-based and strategy-connected measures redefine the nature of the outsourcing relationship from providing efficient services to collaborating for maximum impact. For example, the outsourcer becomes accountable for key process outcomes where talent makes a big difference, and the client's HRM professionals become the designers of the unique and logical connections that identify and evolve the measures as conditions change. This is only one example we have seen, and this transition often requires an objective third-party to help develop and ensure consistent and logical measurement frameworks to define the outsourcing collaboration.

Toward Organization Contribution and Transparency

The 21st century began with earthshaking events that have irreversibly reshaped the role of corporations, governments, and the employment relationship. We are entering an era where measuring profits, shareholder value, or even competitive success is insufficient. Emotions, global diversity, values, affiliation, significance, balance, meaning and integrity are increasingly prominent organizational goals. Organizational leaders will increasingly be expected to provide greater transparency regarding the logic of their decisions. Accounting scandals such as Enron didn't occur because the numbers weren't there, but because analysts could not or did not hold decision makers accountable to explain the connection between the measures, key business processes, and shareholder value. The principles we have described here are consistent with this new focus. A logical connection framework such as the HC BRidge™ framework of Figure 1 will articulate the key connections between talent and organizational success. As "strategic success" is redefined to include more constituents, "talent decision makers" will increasingly include employees, governments, communities and families. As the objectives become ever more diverse, measures that articulate logic and support decisions become ever more important. Measurement will take us far beyond simply justifying HR practices, or making the HR function seem more business like. HR measurement will fulfill the promise of improving talent decisions throughout organizations, which was the ultimate goal of measurement in the first place.

References

Becker, B.E. & Huselid, M.A. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. Research in Personnel and Human Resource Management, 16, 53-101.

Becker, B. E., Huselid, M. A., & Ulrich, D. (2001). The HR scorecard: Linking people, strategy and performance. Boston: Harvard Business School Press.

Brookings Institute (2000). Understanding intangible sources of value: Human capital sub group report. [online] http://www.brook.edu/es/research/projects/intangibles/doc/sub_hcap.htm.

Boudreau, J. W., Dunford, B. B., & Ramstad, P. (2001). The human capital "impact" on e-business: The case of encyclopedia Britannica. In N. Pal and J. M. Ray (Eds.). Pushing the Digital Frontier: Insights into the Changing Landscape of e-Business. New York: AMACOM.

Boudreau, J. W., & Ramstad, P. M. (1999). Human resource metrics: Can measures be strategic? Research in Personnel and Human Resources Management, Supplement 4, 75-98.

Boudreau, J. W. & Ramstad, P. M. (in press). Strategic I/O psychology and the role of utility analysis models. In W. Borman, R. Klimoski & D. Ilgen (eds.). Handbook of Industrial and Organizational Psychology. New York: Wiley.

Boudreau, J.W. & Ramstad, P.M. (2002). From "professional business partner" to "strategic talent leader": "What's next" for human resource management. Working Paper 02-10, Center for Advanced Human Resource Studies, Cornell University. Ithaca, New York.

Boudreau, J.W. & Ramstad, P.M. (2001). Supply-chain measurement for staffing. Working Paper 01-16, Center for Advanced Human Resource Studies, Cornell University. Ithaca, New York.

Cappelli, P. & Neumark, D. (2001). Do "high-performance" work practices improve establishment-level outcomes? Industrial and Labor Relations Review, 54 (4), 737-775.

Fitz-enz, J. (1995). How to Measure Human Resources Management. New York: McGraw Hill.

Gerhart, B.A., Wright, P.M., McMahan, G.C. & Snell, S. (2000). Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates? Personnel Psychology, 53 (4), 803-834.

Kaplan, R.S. & Norton, D.P. (1996). Using the balanced scorecard as a strategic management system. Harvard Business Review, January/February, 75-85.

Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. The Academy of Management Review, 24, (1) 34-48.

Pfau, B. & Kay, I. (2002). The human capital edge: 21 people management practices your company must implement (or avoid) to maximize shareholder value. New York: McGraw-Hill.

Rucci, A.J., Kirn, S.P. & Quinn, R.T. (1998). The employee-customer-profit chain at Sears. Harvard Business Review, January-February, pp. 83-97.

Shelgren, D. (2001). HR Outsourcing. The Journal of Business Strategy, 22 (4), 4.

Tichy, N. (1998). The teachable point of view. Journal of Business Strategy. January/February.

Walker, G. & MacDonald J.R. (2001). Designing and implementing an HR Scorecard. Human Resource Management, 40, (4), 365-377.

About the Authors

John W. Boudreau, Ph.D., Professor of human resource studies at Cornell University is recognized worldwide for breakthrough research on the bridge between superior human capital, talent and sustainable competitive advantage. His research has received the Academy of Management's Organizational Behavior New Concept and Human Resource Scholarly Contribution awards. Dr. Boudreau consults and conducts executive development with companies worldwide that seek to maximize their employees' effectiveness by quantifying the strategic bottom-line impact of superior people and human capital strategies, including Boeing, Bristol-Myers Squibb, Citigroup, GE, IBM, JP Morgan Chase, Novartis, Schering-Plough, Shell International, Sun Microsystems, Transamerica, the United Nations, Verizon, and Williams-Sonoma. Professor Boudreau was an architect and the first Visiting Director of Sun Microsystems' unique Research and Development Laboratory for Human Capital. Professor Boudreau is a Fellow of the National Academy of Human Resources.

Dr. Boudreau has published more than 40 books and articles, including the best-selling Human Resource Management (Irwin: 1997), now in its eighth edition in multiple languages worldwide. In addition to HR metrics, Dr. Boudreau's large-scale research studies and highly focused qualitative research have addressed decision-based HR, executive mobility, HR information systems and organizational staffing and development. His research findings have been published in *Management Science, Academy of Management Executive, Journal of Applied Psychology, Organizational Behavior and Human Decision Processes, Personnel Psychology, Asia-Pacific Human Resource Management, Human Resource Management, Journal of Vocational Behavior, Human Relations, Industrial Relations, Journal of Human Resources Costing and Accounting,* and *Personnel Administrator*.

Features on his work have appeared in *The Wall Street Journal, Fortune, Business Week, Training*, and *Human Resources Management*.

The winner of the General Mills Award for teaching innovations, Dr. Boudreau also founded the Central Europe Human Resource Education Initiative, which links American HR professionals and academic researchers with faculty and students in the Czech and Slovak Republics. A strong proponent of corporate/academic partnerships, Dr. Boudreau directed the Center for Advanced Human Resource Studies (CAHRS), which partners executives from America's top corporations with university researchers and students to explore leading-edge HR issues. This Cornell University "think tank" has generated groundbreaking insights and practical solutions for the human resource challenges that affect most organizations today.

Dr. Boudreau is a member of the board of advisors for Brassring.com, a technology information and career portal. He chaired the Academic Advisory Board of the California Strategic HR Partnership, a silicon-valley HR executive consortium, Saratoga Institute, a leading global source of human capital benchmarking and performance measures; and Primelearning.com, which provides performance-based business and professional skills training over the Internet. He has also been elected to the executive committees of the Human Resources Division of the Academy of Management and the Society for Industrial and Organizational Psychology. Dr. Boudreau holds an undergraduate degree in business from New Mexico State University, and a Masters degree in Management and Ph.D. in industrial relations from Purdue University's Krannert School of Management.

Peter M. Ramstad is Executive Vice President for Strategy and Finance at Personnel Decisions International (PDI). Over the last ten years, Mr. Ramstad has held various leadership positions within PDI. As a result, he has had many opportunities to work first-hand with the core tools of business strategy, organizational effectiveness, and talent development. Prior to joining PDI, Mr. Ramstad was a partner with a major public accounting firm focusing on financial, operational, and systems consulting in high tech and service environments.

Mr. Ramstad has undergraduate degrees in Math and Accounting with minors in Economics and Computer Science, and significant graduate studies in Economics, Mathematics, and Accounting. He is a Certified Public Accountant, Certified Management Accountant, and a member of the AICPA. He has been a speaker at many professional and academic conferences. He has participated as a faculty member in executive education environments and for many corporate events.

Mr. Ramstad has formed two research partnerships with faculty from major universities (Cornell and Texas A&M) to study how people create value, and how that value can be measured. As a part of this research, Mr. Ramstad has worked with clients to understand and measure the financial implications of employee development and effective management. The models and tools for this process are known as Return On People™.

Many people see Mr. Ramstad's breakthrough thinking in this area as fundamental to an organization's ability to implement the systems and techniques required to fully manage human resources as assets, rather than merely expenses. Mr. Ramstad's work goes beyond traditional HR system analysis to focus on the core issues of how organizational capabilities create value and the implications this has for business strategy in the knowledge-based economy.