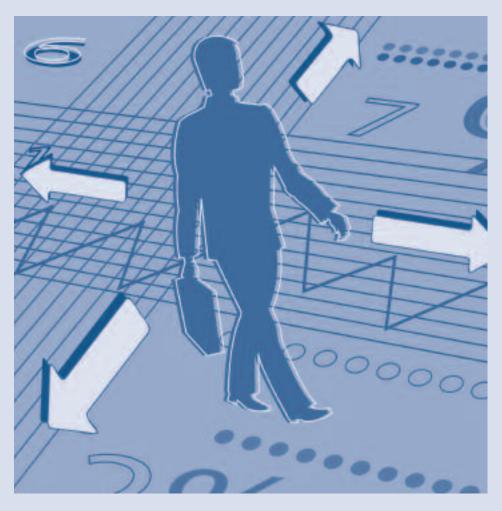
Talentship and HR Measurement and Analysis: From ROI to Strategic Organizational Change

John W. Boudreau, University of Southern California; Peter M. Ramstad, Personnel Decisions International



looming paradox is facing HR and business leaders and HR professionals. The good news is that there has never been a wider recognition of the importance and value of human resources, nor more encouragement for HR professionals to play key strategic roles in their organizations. This increased desire for strategic HR has brought with it an equally rapid rise in demands and expectations for HR measurement. The constituents for HR want measurement systems that enhance their decisions about human capital; however, HR measures largely focus on the traditional paradigm of delivering HR services quickly, cheaply, and in ways that satisfy clients. This is important but incomplete (Boudreau & Ramstad 2003).

Great strides can be made by enlarging our focus beyond the HR profession, to learn how more mature and powerful decision sciences have evolved their measurement systems (Boudreau & Ramstad, 1997). Three anchor points connect decisions about resources such as money and customers to organizational effectiveness (Boudreau & Ramstad, 2005). The three anchor points are efficiency (Do we deliver HR programs and practices through frugal use of resources such as time, money and labor?), effectiveness (When we implement HR programs and practices, do they have an effect on the people to whom we apply them?), and impact (Do we apply our HR programs and practices to the talent pools where they have the greatest effect on our strategic and organizational effectiveness?). Today's measurement systems largely reflect the question of efficiency, though there is some attention to effectiveness as well, through such things as turnover, attitudes, and bench strength. Rarely do organizations consider impact (defined as the relative effect of different talent pools on organizational effectiveness). More important, HR measurement is rarely specifically directed where it is most likely to have the greatest effect on key talent decisions (Boudreau & Ramstad, 2003).

Hitting the Wall in HR Measurement

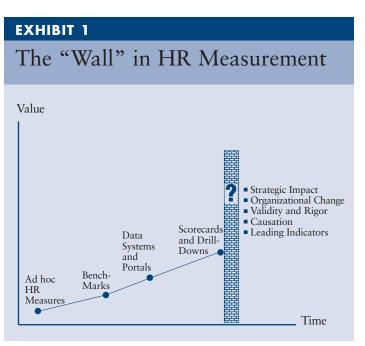
In most organizations there is no shortage of HR measures, and no shortage of technology and products to analyze, organize, and report them. Type "HR measurement" into a search engine, and you get over 900,000 results. Scorecards, summits, dashboards, data mines, data warehouses, and audits abound. Some HR organizations lament that their measurement efforts are stymied by limited budgets, but even in those with significant resources (in fact, especially in these cases), the array of choices is daunting. The paradox is that the ability to implement measurement systems is not the key issue. Even when such systems are implemented, the organizations we work with typically hit a "wall." Despite ever more comprehensive databases, and ever more sophisticated HR data analysis and reporting, HR measures only rarely drive true strategic change (Lawler, et al., 2004).

As Exhibit 1 shows, over time the HR profession has become more and more elegant and sophisticated, yet this trend does not seem to be leading to the desired result. Success is often claimed because business leaders are induced or held accountable for HR measures, such as turnover, employee attitudes, bench strength, or performance



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In this article we extend earlier work by proposing a framework of four elements integrating HR measures within a system for achieving strategic organizational change. The framework provides a diagnostic tool for finding the "sweet spots" where HR measurement is most feasible and effective, and it provides a guide to HR and business leaders looking to take their HR measurement systems to the next level.



distributions. Having business leaders manage to such numbers is not the same as creating organization change. The issue is how to make HR measures create a true strategic difference in the organization. Many of the organizations we work with are frustrated because they seem to be doing all the measurement things "right," yet increasingly they and their constituents are frustrated by the gap between the expectations for the measurement systems and its true effects.

Why do HR organizations hit the wall? Today's HR is on the cusp of a fundamental paradigm shift. It is the same paradigm shift that saw the evolution of the Finance decision science from the professional practice of accounting, and the evolution of the Marketing decision science from the professional practice of sales. Marketing and Finance serve as frameworks for enhancing decisions about customers and money, and those decisions happen both within and outside the Marketing and Finance functions in organizations. Accounting and sales are essential and important professional practices, and they support and integrate with the Finance and Marketing decision sciences. Obviously, Finance is quite distinct from accounting and Marketing is quite distinct from sales.

The evolution of HR and HR measurement will require a sound "decision science" for human capital that truly informs and enhances decisions about human resources wherever they are made. We have coined the term "talentship" for this emerging decision science, by combining the word "stewardship" with the word "talents," which focuses on the hidden and apparent talents of current and potential employees. The new decision science will augment today's focus on delivering excellent HR programs and processes, by providing a framework to identify what decisions about human capital are most

crucial, and how to connect those decisions logically to organization effectiveness. HR programs and processes will remain important, but, like accounting and sales, they will be even more powerful as part of the new decision science (Boudreau & Ramstad, 2005).

The evolution of talentship has significant implications for all aspects of the HR profession, including governance, HR functional design, the definition and process of strategic HR, and HR competencies. In this article, we focus on the implications for HR measurement systems that strive to drive organization change.

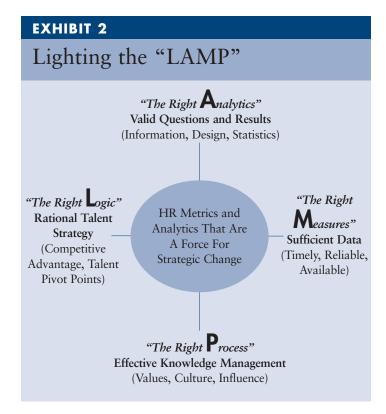
Beyond HR Measures: The "LAMP" Framework

In financial measurement, it is certainly important to measure how the accounting or finance department operates. Measures such as transaction processing time and benchmark staff levels are important for internal functional control; however, the vast majority of measures used for financial decisions are not concerned with how finance and accounting services are delivered. Few financial measures tell line managers about how the finance department conducted its activities. Financial measures typically tell how well those line managers made decisions about financial resources.

In HR today, the dominant paradigm remains one of service delivery. The HR profession describes itself in terms of its functional services (rewards, staffing, training, benefits, etc.). The dominant framework for working with business leaders and other constituents is based on determining what HR services they need or want, and their satisfaction with those services. It should be no surprise that most HR measures today focus on how the HR function is using and deploying its resources, and whether they are used efficiently. Cost-per-hire, time-to-fill-vacancies, cost-per-training-hour, etc., are all examples. It is not unusual to see line managers held accountable for these efficiency-based measures, even when their connection to organization effectiveness is unknown.

We have proposed that the paradigm shift toward the talentship decision science requires future HR to model itself more closely against decision-based functions like Finance and Marketing that are accountable for improving decisions throughout the organization about their respective resources (Boudreau & Ramstad, 1997, 2005). Their measurement systems are designed to direct key decision makers to focus on the relevant information. Their systems hold decision makers accountable for the quality of their decisions about financial or marketing resources. In the same way, HR measurement needs to extend its traditional focus on the HR function, and increase its capability to support key decisions about human capital that drive organizational effectiveness. That requires a framework for connecting those investments to organizational effectiveness. With such a framework we can begin to identify where the potential for increased decision support may lie in HR measures.

The paradigm shift toward a talent decision science is a fundamental reason why today's HR measurement initiatives hit the wall. In this article, we propose that we can understand how HR can move beyond the wall by using a framework that we have labeled the "LAMP" model. The letters in LAMP stand for four critical components of a measurement system that drives strategic change and organizational effectiveness. The letters stand for "logic," "analysis," "measures" and "process." Measures represent only one component of this system. Though they are essential, without the other four components they are destined to remain isolated from the true purpose of HR measurement systems.



Logic: Relying on the Decision Science

Consider the concept of return on investment, ROI. It suggests that decisions about allocating monetary resources should consider:

- 1. The inflow of returns produced by that allocation;
- 2. The offsetting outflows of resources required to make the investment:
- How the inflows and outflows occur in each future time period;and
- 4. How much what occurs in future time periods should be "discounted" to reflect greater risk and price inflation.

These factors come together in an elegant formula that produces an ROI number when the values of each factor are plugged in. ROI is an example of one decision logic from a highly evolved decision science: finance. What is often forgotten is that ROI is not a number. It is a logical framework for identifying the important elements of investments and integrating them in a way that enhances decisions. With appropriate data, ROI can be calculated, but its more fundamental contribution is to provide a logical framework that identifies the critical variables, and allows decision makers to think and communicate more clearly about their decisions. Assumptions about inflows, outflows, and discount rates are easily compared, even when data are sparse. Discussions about the relative value of investment alternatives are less emotional because the framework guides them. The logic of ROI is an essential element of its power for decision support. Without the ROI logic, even if you were given perfect data for all the factors of the ROI calculation, you would likely not invent ROI. In fact, ROI is a 20th century idea, despite the fact that accounting is hundreds of years old. Logic, even without perfect data, is a powerful component of organization change.

In HR we do not have decision support frameworks as elegant as

ROI, and simply applying ROI logic to HR investments is not the answer. The ROI components are not available for most HR decisions, and the ROI framework really does not focus on the right questions for HR investments, because it was developed for financial investments. We can, however, learn much from the elegance and value of the ROI formula. Even relatively simple frameworks are valuable when they help clarify the connections between the array of factors affecting a decision and the outcomes of that decision. One such framework is HC BRidge®.

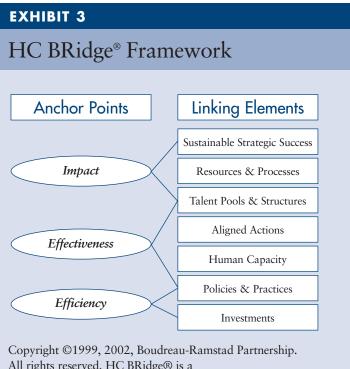
Logic: The HC BRidge® Framework of Efficiency, Effectiveness, and Impact

The three anchor points of strategic HR are impact, effectiveness, and efficiency. "Impact" asks: "How much will strategic success increase by improving the quality or availability of a particular talent pool?" For example, we find that most HR and business leaders asked to identify the key talent at Federal Express will name pilots, logistics designers, and top leaders. No one can deny their importance. Yet, at Federal Express Asia Pacific, some of the largest opportunities to improve on-time performance and customer satisfaction might lie with a relatively "undervalued" talent pool: couriers and dispatchers. It is not unusual for couriers to encounter a customer who says something like the following: "Can you wait 15 minutes, because I will have eight more packages for you." The quality of courier responses, multiplied across hundreds of incidents every day, contributes significantly to the effectiveness or ineffectiveness of the entire system. Waiting at the wrong time could cause a truckload of packages to miss the timing window at the airport hub, and be delivered late. Not waiting, when time is available, could cause needless customer dissatisfaction. Improving the quality of the courier-dispatcher talent pool on this important aligned action is actually more pivotal even than improving pilot quality. A traditional analysis would identify pilots as a more valuable talent pool on average, and we would concur. Pilots have higher salaries, higher educational requirements, and handle aircraft worth millions of dollars. Yet "talent pool pivotalness" focuses on how improvements in talent enhance strategic success. Pilots are important, but little gain is achieved by improving pilot performance. The impact anchor point of the HC BRidge framework reveals that there is more opportunity to advance the strategy by improving the performance of couriers than pilots. Moreover, it identifies precisely what elements of courier performance mattered most.

"Effectiveness" asks: "How much do HR programs and processes affect the capacity and actions of employees in each talent pool?" Capability (can employees contribute?), opportunity (do employees get the chance to contribute?), and motivation (do employees want to contribute?) are the elements of "human capacity" in the HC BRidge® Decision Framework. At Federal Express Asia-Pacific, the "aligned action" could be the correct response to the customer request. Understanding this reveals new opportunities for HR programs to create aligned actions through capability, opportunity, and motivation. For example, in Asia, unlike in the United States, common social status differences often mean couriers expect to defer to the customer, and might find it inappropriate to say "No" to a customer request. Yet, considering the impact of this action, creating for couriers the motivation, capability, and opportunity to say "No" may be one of the most strategic investments the organization can make. For example, "opportunity" can be created by adding additional shipping trucks to handle overflow. Couriers could then say "No, I can't take your additional packages now, but I can send someone who can." Thus, a deep and logical analysis of the courier talent pool aligned actions can reveal improvements in the design of the ground operations system.

"Efficiency" asks, "How much HR program and process activity do we get for our investments (such as time and money) in HR programs, practices, and functions?" In the Federal Express example, HR might have benchmarked its efficiency by measuring cost per hire, pay per employee, or time to train. Usually, such benchmarking suggests where costs/time can be reduced, and/or where volume of HR activity can be increased, without spending more. The more complete analysis suggests that it might make sense to spend more resources than their competitors, to get the right couriers and dispatchers, precisely because of their strategic importance. Competitors battling to reduce HR expenses by hiring those who will work most cheaply may be overlooking the strategic opportunity that better-qualified workers can produce in these pivotal roles.

The linking elements describe the particular strategic components that support the anchor points. For example, to understand impact requires defining sustainable strategic success, and making that definition specific by understanding where improvements in resources being acquired, deployed, or protected, or where improved process quality, speed, or volume would most contribute to sustainable



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strategic success. Finally, impact requires understanding where improvements in the quality or quantity of talent pools and structures will most improve the key resources and processes. A similar set of sub-elements support effectiveness and efficiency.

In earlier work, we have shown how this framework can be used to evaluate the array of measures and measurement approaches that exist, and to help HR leaders diagnose where their measurement systems are well-populated and where they have gaps (Boudreau & Ramstad, 2003). It is not unusual for organizations to develop elegant scorecards that are dominated by efficiency measures tracking the investments made in HR policies and practices, or by one or two specific measures of human capacity such as employee attitudes, or by one particular aligned action such as performance ratings or turnover. Although the relative impact of talent pools is seldom directly measured, there are promising methods that have been used by researchers for decades (Boudreau & Ramstad, 2003).

Simply put, the "L" in the LAMP framework emphasizes how "logic" identifies the questions that are most critical to answer. If the logic framework is sufficiently deep, it will articulate a set of specific connection points between HR investments, their effects on talent pools, and the ultimate effect on organization outcomes. The more precise the logical questions, the more precise are the potential measurement and analysis. One can think of the logic as the source of the questions or "hypotheses" regarding how one thing affects another to lead to organizational outcomes.

Analytics: Finding the Answers in the Data

Even a rigorous logic can flounder if it is tested on data that are not correct or if an analysis is done incorrectly. For example, there may be a strong logic to suggest that if employee attitudes are improved, they will convey that to customers who will in turn have more positive experiences. It might be tempting to test that logic by correlating employee attitudes with customer attitudes across several retail locations. If higher employee attitudes are associated with higher customer attitudes, that might be interpreted to mean that improving employee attitudes will improve customer attitudes. Of course, this conclusion

the training of social scientists in areas such as psychology, sociology, and economics. Many HR organizations already employ an HR research team. Such teams are often comprised of social scientists with Ph.D.-level training in designing and carrying out research. They often focus on analyzing large databases such as employee surveys or compensation. Sometimes organizations rely on analytical capability outside the HR function. For example, organizations with strong capabilities in customer and market analysis often engage their market analysts on HR issues. It is not unusual to find market researchers called in to look for patterns of employee attitudes, and identifying employee "types." Or, engineers may be adept at data mining, and identifying patterns in everything as varied as oil deposits, customer demographics, and flows through the supply chain. These groups are sometimes asked to examine HR data on employee demographics, movement patterns between jobs, turnover, or attitudes, to try to find useful patterns. Finally, some HR organizations call on outsiders for analytical capabilities, with a wide variety of commercial vendors or universities

HR analytics teams are also often called upon as subject-matter experts to support other HR professionals, or they are asked to educate their HR peers, to help raise the level of analytical awareness in the HR function. For example, Sun Microsystems created an R&D laboratory for HR, and over time the HR R&D laboratory evolved from a source of specific research on the effects of HR programs, to a

The more abundant HR data becomes, the more essential is analytical capability. Without it, HR and business leaders can fall victim to improper conclusions, or be misled by superficial patterns, and poor human capital decisions.



would not always be correct. A simple correlation between employee and customer attitudes does not imply that one causes the other, nor that improving one will lead to improvements in the other. It may just as easily be that locations with loyal and committed customers are more pleasant to work in, so customer attitudes actually cause employee attitudes. Or, the relationship could result from a third factor. Perhaps stores with better merchandise or more frequent access to new products have higher customer satisfaction because of product selection, and higher employee satisfaction because employees like being in on the latest releases.

What do we mean by the term "analytics"? It draws on statistics and research design, but it goes beyond them, to include skill in identifying and articulating key issues, gathering and using appropriate data from within and outside the HR function, setting the appropriate standards for rigor and relevance, and enhancing the analytical competencies of HR throughout the organization. Analytics transforms HR data and measures into rigorous and relevant insights. The more abundant HR data becomes, the more essential is analytical capability. Without it, HR and business leaders can fall victim to improper conclusions, or be misled by superficial patterns, and poor human capital decisions. Analytics ensures that insights from HR data provide legitimate and reliable foundations for human capital decisions.

Thus, analytics is an essential addition to deep and rigorous logic for an effective measurement system. As it turns out, many analytical principles and competencies already exist. They are a standard part of source of analytical expertise for others in HR, to a source of forward-looking research on issues deemed to be critical to the strategic future of the organization, such as virtual work (California Strategic Human Resources Partnership, 2004).

Whether the analytical skills reside within the HR function, in other parts of the company, or with an outside organization, the analytical teams are generally focused on fairly narrow HR domains. It is not unusual for internal HR research groups to attend exclusively to attitude surveys, or only to compensation market data, or only to mapping flows of employees through different roles and positions. Increasingly, these skills are often valuable outside these rather specialized areas. Analytical skills are even appearing in competency models (National Academy of Public Administration, 2002). The challenge is to create an HR measurement system and organization structure that successfully engages these skills where they can have the greatest effect.

Measures: Balancing Elegance with Relevance

As noted earlier, the "measures" component of the LAMP model has received perhaps the greatest attention in HR. Lists of HR measures abound, often categorized into scorecards and dashboards. Much time and attention is paid to enhancing the quality of HR measures, based on standard measurement criteria such as timeliness, completeness, reliability, and consistency. These are certainly important standards, but lacking a context they can be pursued well beyond

their optimum level, or they can be applied to areas where they have little consequence. For example, we often encounter organizations that spend a great deal of time and effort to ensure that the headcount numbers match when produced by different business units or by finance versus HR. There is often a sentiment that "Our line leaders tell us that if we cannot even count how many people we have, they do not trust our other measures." Yet, will precise headcount numbers lead to better measures in other HR areas? A fixation on the quality of measurements can draw attention away from other essential elements of the LAMP framework.

This dilemma requires balancing elegance with relevance, but it is not an unusual dilemma in business. The same dilemma is often seen in technical disciplines such as engineering or R&D. Product designers may be able to develop copiers that can produce pixels so fine that the human eye cannot detect them, or reflective materials for highway

The point is that measurement precision is not a panacea. A great many scientific methods are available to polish and hone HR measures, making them more reliable and precise. Precision and measurement can be important, when guided by logic and properly paired with analytics and appropriate change processes. The key is to consider measurement quality as another element of decision support. Improved measures require investment that should be directed where it has the greatest return, not simply where improvement is most feasible.

Process: Change and Knowledge Management

The final element of the LAMP framework is "process." In the talentship paradigm, the ultimate criterion for HR measurement is how it affects organizational effectiveness and strategic success. Measurement affects these outcomes through its impact on the decisions and behaviors of those in the organization, and those decisions



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signs that are visible from several miles away. In both cases the refinements may be beyond any feasible market value. Avoiding such outcomes requires framing R&D within a context of customer value and usefulness. In the same way, logical context can help with HR's relevance-elegance dilemma.

Measuring turnover offers a good example. Many HR organizations spend a great deal of time debating about the appropriate formula for turnover measurement, or the precision and frequency with which it can be calculated. One HR data warehouse team we worked with said: "We have built the most sophisticated turnover tracking data and interface in the world. Now, we will put it out there and see what our managers do with it" (Boudreau & Ramstad, 2003). Another typical approach is to compare turnover levels to ever more precise benchmarks.

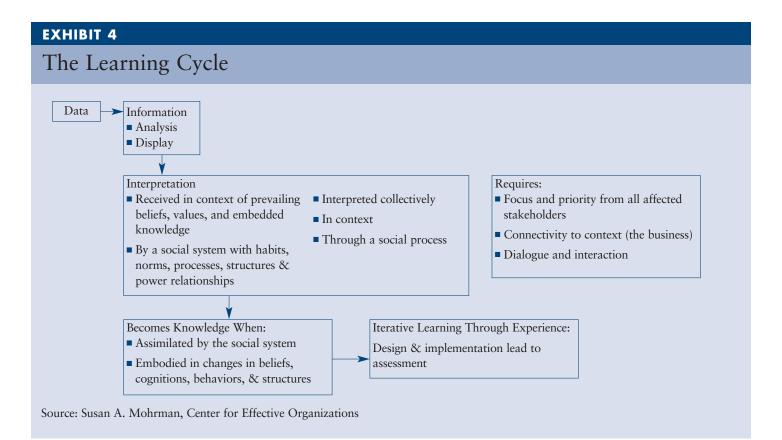
Yet the implications of turnover rates are very different, depending on context. In some situations, turnover is causing a shortage in the quantity of employees. When applicants are well qualified and quickly master the job, high turnover incurs costs of churn and, if filling positions takes time, may cause shortages. Turnover affects the business process mostly through the lack of a full complement of employees, as in call centers. Thus, how long it takes to fill a vacancy is a key factor in turnover implications. A completely different situation is one in which turnover creates a capability shortage, such as where it takes time to learn the job, and experienced individuals are leaving to be replaced by inexperienced ones. Here, reducing turnover or time to fill vacancies may not address the problem. Turnover can be reduced without increasing overall workforce experience, such as when the number of departures among experienced employees rises, and the number of departures of inexperienced employees falls by an equal or greater number. In this second situation, the pattern of turnover is key, so turnover levels and time to fill may be much less important than keeping experienced employees or speeding the learning among new employees.

and behaviors occur within a complex web of social structures, knowledge frameworks, and organizational cultural norms. Thus, a key component of effective measurement systems is that they fit within a change-management process that reflects principles of learning and knowledge transfer. HR measures and the logic that supports them are part of an influence process.

Dr. Susan Mohrman at the Center for Effective Organizations (CEO) at the University of Southern California has proposed that HR measures must take account of the learning cycle in organizations. She emphasizes that once data has been refined into analysis, and displayed to potential users, it enters into a complex social process of interpretation, assimilation, and iteration. Appreciating these variables can help avoid common problems that make HR measurement incompatible with the needs of information users.

For example, research shows (Johns, 1993) that if managers perceive HR issues as strategic and analytical, they may simply not attend to analytical and numerical analysis. They seem to place HR into a "soft" category of phenomena that are beyond analysis, and therefore only really addressable through opinions, politics, or other less analytical approaches. So, an initial step in effective measurement is to get managers to accept that HR analysis is possible, and could be informative. The way to do that is often not to present the most sophisticated analysis right away. Instead, the best approach may be to present relatively simple measures that clearly connect to the mental frameworks with which managers are familiar. In some organizations, simply calculating and tracking the costs of turnover, for example, reveal that millions might be saved with even modest turnover reductions. Many organization leaders have told us that such a turnover cost analysis was their first realization that HR issues could be connected to the tangible economic and accounting outcomes with which they were familiar.

No one would suggest that measuring only the cost of turnover is sufficient for good decision making. Certainly, overzealous attempts to



cut turnover costs can lead to compromises in candidate quality that have negative effects that far outweigh the cost savings. The right change process may dictate starting with turnover costs before presenting managers with more complete (and complex) analyses. An initial analysis using simple cost reduction may create needed awareness that the same analytical logic used for financial, technological, and marketing investments can apply to human resources. Returning to the HC BRidge[®] framework, HR measures in all three anchor points (efficiency, effectiveness, and impact) are useful. From a change-management perspective, efficiency measures may be the appropriate starting point for building measures that span the framework.

We have noted (Boudreau & Ramstad, 2003, 2005) that a significant future evolution for the HR profession will be to transform from influence through responding to client requests or telling constituents what is required. The transformation must enhance HR's influence through educating constituents about the principles and logic they can use to make better human resource decisions. Education is a core element of any change process model. Recall the earlier example showing that the ROI formula from finance is actually a potent tool for educating leaders in the key components of financial decisions. In the same way, HR measurements will educate constituents, and become embedded within the organization's learning and knowledge frameworks, even if it is unintended. The measures that are chosen and presented by HR send signals about what is important, and become part of the social and learning processes of the organization. If HR measures mainly costs and administrative control, that sends a strong signal to the organization that HR contributions may be limited to those areas. Although everyone accepts that people drive organization effectiveness, change processes articulate the practical meaning of that principle.

Conclusion: How to Use LAMP to Find the Measurement "Sweet Spots"

Too often, organizations attempt to apply measurement systems across to the entire employee population, across the board. Examples include attempting to get precise headcount or attitude data across all businesses, countries, and product lines. This often entails massive investments in data systems and measurement interfaces, and often requires measurement efforts in areas in which the payoff is small. It can cause resentment among HR clients who perceive the measurement process as a waste of time and energy.

More progressive organizations aim measurement efforts where they have the most potential impact on decisions. Undoubtedly, head-count fluctuations in some talent pools are crucial, if those talent pools are vital to strategic success, and where fluctuations in headcount are highly disruptive. HR leaders and managers in these areas should be held accountable for carefully monitoring workforce levels. Similarly, employee attitudes are more crucial in some talent pools than in others. For example, some organizations have directed their efforts to understand deeply employee attitudes toward talent pools that interact with customers directly, on the premise that positive employee attitudes in these areas are most likely to result in strong customer responses (Rucci, et al., 1998). When guided by a framework like LAMP, measurement efforts take on more significance, and measurement investments can be targeted more rationally.

Effective HR measurement systems must integrate and balance all the elements of the LAMP framework. Every element plays its part, but is best when used in concert with the other elements. Over-emphasizing logic can create frameworks that are too abstract for action, or impossible to measure and analyze. Over-emphasizing analytics can lead to wasted time and energy on analyses that are technically rigorous but have little connection to real issues and little effect on decisions. Overemphasizing measurement can lead to information overload, with ever more elegant measurements achieving little additional relevance. Overemphasizing the change processes can lead to misguided energy and enthusiasm directed toward objectives that cannot be measures and may not be relevant. Frameworks like LAMP can provide diagnostic logic to help avoid information overload and be more certain that HR measurement efforts will actually affect organization change. Exhibit 5 shows some diagnostic questions suggested by the LAMP framework. These questions can help HR leaders find the "sweet spots" where measurement efforts can drive organizational change.

We have noted that the ever-increasing array of available HR measures and data analysis technologies creates a real risk that HR measurement efforts collapse under their own weight. Information overload is probably a much larger danger than information scarcity,



in today's HR world. The answer to this danger lies in moving beyond traditional models of HR as exclusively service delivery, and beyond approaching HR measurement merely as a way to construct more and more HR measurements. Talentship emphasizes HR as a decision science, and enhanced decisions drive organization change and effectiveness. By combining logic, analytics, measures, and process, HR and business leaders can vastly increase their chances of getting beyond the "wall" in HR measurement.

BIOGRAPHICAL SKETCHES

John W. Boudreau, Ph.D., is Professor of Management & Organization in the Marshall School of Business, and Research Director of the Center for Effective Organizations (CEO) at the University of Southern California, and is recognized worldwide for breakthrough research on the bridge between superior 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 organizations worldwide that seek to maximize their employees' effectiveness by quantifying the strategic bottom-line impact of superior people and human capital strategies, including Citigroup, Corning, GE, JP Morgan Chase, Sun Microsystems, the United Nations, and Williams-Sonoma. Professor Boudreau is a Fellow of the National Academy of Human Resources. Prior to joining USC, he was a Professor of Human Resource Studies and Director of the Center for Advanced Human Resource Studies (CAHRS) at Cornell University.

Dr. Boudreau has published more than 50 books and articles, including the best-selling *Human Resource Management*, in multiple languages worldwide. Dr. Boudreau's other 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*, *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*.

Peter M. Ramstad is Executive Vice President for Strategy and Finance at Personnel Decisions International (PDI). Over the last 14 years, Mr. Ramstad has held various leadership positions within PDI, including chief financial officer, contributing to PDI's strategic initiatives in strategy, organizational effectiveness, HR functional strategy, and talent management. Prior to joining PDI, he was a partner with a public accounting firm focusing on financial, operational, and systems consulting in high tech and service environments.

Mr. Ramstad's research and consulting focuses on an organization's ability to manage human resources as assets, rather than merely expenses. This extends traditional HR system analysis, by focusing on how organizational capabilities create value and the connection to competitive success. Mr. Ramstad has worked extensively with both HR and line leaders at all levels of several US and multinational organizations.

Mr. Ramstad is a Certified Public Accountant, Certified Management Accountant, and a member of the AICPA, and holds degrees in math and accounting with minors in economics and computer science. He speaks frequently at professional conferences in human resource management, finance and accounting, and designs

and conducts both public and firm-specific executive education, including regular professional development workshops for the Society for Industrial and Organizational Psychology (SIOP) and the Executive Education programs for the University of Minnesota business school.

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