

WORKING PAPER SERIES

Beyond Cost-per-Hire and Time to Fill: Supply-Chain Measurement for Staffing

John W. Boudreau
Peter M. Ramstad

Working Paper 01 - 16



Beyond Cost-per-Hire and Time to Fill: Supply-Chain Measurement for Staffing

John W. Boudreau

Department of Human Resource Studies, ILR School
Director, Center for Advanced Human Resource Studies (CAHRS)
Cornell University
187 Ives Hall
Ithaca, New York 14853-3901
http://www.ilr.cornell.edu/depts/CAHRS/boudreau_john.html/
P: 607-255-7785
F: 607-255-4953
e: jwb6@cornell.edu

Peter M. Ramstad

Executive Vice President, Strategy and Finance
Personnel Decisions International (PDI)
Executive VP, Strategy and Finance
Personnel Decisions International
730 Second Avenue South
Suite 700 Peavey Building
Minneapolis, MN 55402-2489
P: 612-573-7701
F: 612-573-7801
e: Pete.Ramstad@personneldecisions.com

<http://www.ilr.cornell.edu/cahrs>

This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research available to others interested in preliminary form to encourage discussion and suggestions.

Executive Summary

Identifying and acquiring talent is one of the most important processes in human resource management. It is a key element in being competitive in a knowledge driven, talent constrained economy. In addition, it is often the first contact that potential employees have with the organization, so it can be the basis for the entire employment relationship. Increasingly, organizations recognize that a professionally excellent staffing process can be a source of competitive advantage. Moreover, the emergence of fundamentally new information technologies and communication processes – such as the Internet, virtual job fairs, online testing, and global job boards – increase the opportunities and the risks associated with staffing process management.

Unfortunately, existing staffing process measurement systems typically fail to provide the information necessary to understand, evaluate and make rational decisions about investments in the staffing system, and fail to support decisions about staffing by HR professionals, line managers, applicants and employees. As a result, organizations often base decisions about their staffing systems solely on information about the volume of applicants or new hires, or the costs and time involved in staffing activities. This leads to potentially disastrous decisions, and opens the door for competitors. In this article, we propose a framework for a staffing measurement system that truly supports professional excellence, partnership and optimal investment decisions.

This technical working document is an unpublished copyrighted work containing trade secret and other proprietary information of John W. Boudreau and Peter M. Ramstad. This copy has been provided on the basis of strict confidentiality and the express understanding that it may not be reproduced, and may not be revealed to any person, organization, consultant, or vendor without express permission from Boudreau and Ramstad.

Copyright © 2001 John W. Boudreau & Peter M. Ramstad. All rights reserved

Beyond Cost-per-Hire and Time to Fill: Supply-Chain Measurement for Staffing

Staffing System Decisions Can be Significantly Improved

The “War for Talent” survey (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels, 1998), of corporate officers at 77 companies, found that 65 percent believed they had insufficient talent in the ranks of their top 300 leaders. Not surprisingly, 78 percent of the officers believed that line managers should be held accountable for the quality of their people. Yet, only seven percent felt that this actually was happening in their organization. The same phenomenon exists when we look at the research on staffing. Recruitment research has been described as having an “alarming” preoccupation with the individual level of analysis, with calls for researchers to “change the predominant level of analysis in recruitment research from individual to organizational,” to develop case studies of organizations recognized for recruitment excellence or sub-par performance, and to assess intermediate outcomes of recruitment systems (Taylor & Collins, in press). The other elements of the staffing process fare little better. Research in areas such as employee selection, screening and employment offers has largely focused on individual reactions or responses to particular techniques, or their validity in predicting particular employment outcomes.

Here are several typical examples that we have encountered in many organizations, illustrating just how much improvement is possible.

How “Yield” Can Be Misleading

Many organizations measure recruitment yield (defined as the percentage of offers which are accepted) to guide their decisions regarding recruitment sources. This seems logical on the face of it, since recruitment must produce applicants to be effective, and it is a readily available measure. In fact, many staffing system “quality” initiatives often use yield as their key metric for process improvement. Let’s consider college recruiting as an illustration, but our observations will apply as well to decisions about other sorts of recruiting sources, including internet job boards, search firms, employee referrals, etc. Consider the situation in Exhibit 1.

College	Hires	Offers	Yield
A	10	15	67%
B	50	100	50%
C	20	60	33%

Based on this information, many organizations would conclude that College C's yield is inferior. If the quality standard was "yields greater than 45%," the decision is to drop College C from the recruiting strategy.

Now, consider the analysis in Exhibit 2. With information about the cost-per-hire from each source, the results tell a very different story. College C is lowest-cost, which argues for staying with College C, or even expanding our efforts there, to reduce our hiring costs.

Exhibit 2
Measuring Cost per Hire

College	Hires	Yield	Cost/ Hire
A	10	67%	\$9,500
B	50	50%	\$12,000
C	20	33%	\$6,500

Finally, consider the analysis depicted in Exhibit 3. We have kept the yield and cost information the same, but have now added information about the quality of hires in the last two columns.

Exhibit 3
Measuring Cost of Quality

College	Hires	Yield	Cost/ Hire	Percent "A" Hires	Cost/"A" Hire
A	10	67%	\$9,500	60%	\$15,833
B	50	50%	\$12,000	20%	\$60,000
C	20	33%	\$6,500	40%	\$16,250

As Exhibit 3 shows, the percentage of "A" hires (measured in terms of eventual value to the organization) is actually highest for Colleges A and C. Because of the cost structure, Colleges A and C emerge as significantly more effective in producing high-quality employees at low cost. Comparing the last two columns of Exhibit 3 to the third column shows how dangerous it is to rely on recruitment yields alone for staffing system decisions.

The Fallacy of Blaming the Wrong Part of the Process

Faced with chronic shortages among hotly-contested talent pools, human resource leaders propose to tap new applicant sources, by using the internet, implementing employee referral bonuses, expanding the use of headhunters, etc. After observing the results for one recruitment cycle, the increase in the number of new hires and the cost is evaluated. Exhibit 4 shows the typical analysis logic.

Exhibit 4			
Cost Analysis of Expanded Recruitment			
Staffing System	Hires	Cost of System	Cost/Hire
Using Few Sources	100	\$.7 Million	\$7,000
Using New Sources	110	\$1.1 Million	\$10,000

As Exhibit 4 shows, the organization achieved a 10% increase in the number of new hires, but increased costs by over 40%, from \$.7 million to \$1.1 million. Typically, the new initiative would be deemed a failure, and scaled back, to get HR costs in line. Blaming the enhanced recruitment investment for the failure to achieve more hires is the result caused by this measurement system.

Now, let's consider how the decision might change with different staffing measurements. Exhibit 5 contains information on the number of offers made, and the resulting cost per offer. As we can see, when these data are presented, it is apparent that the new system did, indeed, perform as it was hoped. The number of candidates receiving offers with the new system was twice the old level, and the cost per offer was significantly less. Under the old system the cost-per-offer was \$3,500 and it is only \$2,750 under the new system.

Exhibit 5			
Cost Analysis of Offers			
Staffing System	Cost of System	Offers	Cost/ Offer
Using Few Sources	\$.7 Million	200	\$3,500
Using Expanded Sources	\$1.1 Million	400	\$2,750

It turns out that the new sources did, indeed, generate more applicants, and they were of high enough quality to justify receiving offers. So, what caused the number of hires to improve so little? The organization failed to “land” the candidates receiving offers. For some reason, the larger number of offers didn’t result in the same rate of offer acceptance as under the old system. Is that the fault of the decision to go to more and different sources? Possibly. Perhaps the new sources turned up applicants who were much less likely to accept our offers, for example by soliciting applicants living in locations much better than ours, or whose rewards and perquisites priced them out of our market. However, there are many other possible explanations. One thing is certain – we simply can’t tell from this analysis.

In fact, Exhibit 6 presents another way of analyzing the data that tells a very different story. We have gone back and examined the pattern of offers and yield across hiring managers, and reported the cost-per-hire under both the old and the new systems.

Exhibit 6					
Analysis of Hiring Manager Quality					
Manager	Offers	Yield	Hires	Cost/Hire @ \$3,500 per offer	Cost/Hire @ \$2,750 per offer
A	120	10%	12	\$35,000	\$27,500
B	20	35%	7	\$10,000	\$7,857
C	40	25%	10	\$14,000	\$11,000
D	70	30%	21	\$11,667	\$9,167
E	60	50%	30	\$7,000	\$5,500
F	90	33%	30	\$10,500	\$8,250
Total	400	27.5%	110		

It turns out that the hiring managers varied a lot in their ability to “land” talent. Manager A made the most offers, but had a yield of only 10%. Manager E made half the offers, but had an acceptance yield of 50%, generating almost three times the number of hires. The cost-per-hire for Manager E is only \$5,500 (under the new system), while it is \$27,500 for Manager A. Consider what would have happened if Manager A had merely improved his/her offer acceptance rate to 27.5%, the average of the group. Manager A’s number of hires would have been 33, and the total number of hires would have increased from 110 to 129, almost a 20% increase! Thus, by measuring as in Exhibit 6, we see that the new recruiting system did generate more offer-eligible candidates, but the organization wasn’t able to land them, and there may be significant potential value improving some hiring managers’ effectiveness in landing talent, and learning from those managers who are doing an exceptional job.

The problem is not the investment in the new recruiting system; it’s the need to augment that investment by improving the ability to land great talent.

Analyses like this sometimes prompt reactions from HR professionals such as “We already ask so much of our line managers that it seems ungrateful to second-guess their decisions, or to turn around and use their willingness to work with us to compare them unfavorably to other managers.” To the contrary, we find that most line managers are quite accustomed to comparisons and goal-directed guidance, particularly from business-partner functions such as finance, marketing and operations. With appropriate data, HR professionals can and should engage their line clients in efforts to evaluate and improve their performance.

The Power of Decision-Based Measurement

These two examples show the power of taking a logical approach to the staffing process, and creating measures that reflect solid logic. The information needed (cost, yield, quality of hire) is often available, but simply not tracked or presented this way. The first example required the organization to identify the “A” hires, and then link that information to their recruitment sources. The second example required knowing the offer acceptance rate, and then tracking it back to individual managers.

Consider what happens if competitors in the labor market are doing this analysis and your organization isn't. In the first example, the organization that relied only on yields is dropping College C (due to low yields), just as competitors realize it is a low cost-per-quality source, and now have less competition at College C reap even greater benefits. In the second example, the organization that relied only on total cost per hire is cutting back its investment in expanded recruitment (because their hiring rate didn't increase), while competitors are investing in enhancing hiring managers' success in landing talent. With the first organization out, competitors tapping into the expanded applicant pool gain even more from their investment.

Supply-Chain Management and the Staffing Process

The analogies to supply-chain management are unavoidable. Supply-chain analysis pays careful attention to the ultimate quality of materials and components, and they analyze the quality of those inputs in terms of their effects on key organizational outcomes (reliability, failure rates, etc.). Yet, the processes that are used to acquire talent, one of the most critical inputs to organization success, are often measured using systems and logic that are at best rudimentary, and at worst downright misleading. Supply-chain analysis seldom focuses solely on the volume or cost of what is acquired. Instead, it focuses on measurements that reflect the logic of the supply-chain process, and that provide diagnostic information to improve supply-chain decisions.

Many supply-chain systems focus on minimum specifications for component quality (e.g., ISO 9000). For staffing it is usually more useful to focus on maximizing quality. Still, the same supply-chain and process logic applies, but the standard in staffing is to achieve the optimum quality possible. This logic applies to materials such as diamonds for jewelry, crude oil, or mineral ore.

What the Research Tells Us About Staffing Measurement

Staffing research can offer insights regarding how to optimally measure staffing systems, and achieve the highest possible contributions. Unfortunately, most academic studies have not focused on organizational decisions, emphasizing instead reactions and behaviors of individual applicants, or the statistical performance of particular techniques.

Important decisions regarding staffing systems are made at the organization level, including where and how to recruit, how much to invest in selection and screening, how to prepare and train recruiters and selectors, how to structure incentives that induce applicants to consider and accept job offers. Statistical validity and applicant reactions undoubtedly can inform such decisions, but there is a little research and few frameworks for enhancing such decisions. Taylor and Collins (in press) located only six studies that examined the relationship between recruitment and firm-level measures of performance. These provide tantalizing evidence of positive relationships, but such studies cannot explain why staffing investments pay off, nor how to make those investments. Boudreau & Ramstad (in press, 1998) noted the need for measures that more closely reflect the logic underlying organizational performance and strategy, and that the purpose of measurement frameworks is to support and enhance decisions, including decisions about investments in HR programs.

Thus, both practice and research shows that staffing measurement and evaluation is hindered by the absence of a decision-based approach, and that existing research and practice provides little to address this gap. Research in scientific journals has produced several models offer promising frameworks to support such decisions, but the research focuses mostly on measuring specific variables, rather than on the logic of good staffing decisions. Thus, potential quite useful research models are infrequently used in organizations (Boudreau & Ramstad, in press). As early as the mid-1980's Boudreau and Rynes (1985) suggested a mathematical framework for analyzing the elements that contribute to payoff from staffing systems, and yet discovered in a survey of managers that although most organizations felt they measured their staffing processes well, virtually no organizations even gathered the necessary information to use the framework (Rynes & Boudreau, 1986).

Next, we propose a framework that draws on this research, as well as the rigor and logic of supply-chain management, and a focus on staffing decisions, rather than staffing technology.

A Decision-Based Approach to Staffing Measurement

The key to strategic measurement of any process is to realize that measures exist to enhance decisions (Boudreau & Ramstad, 1998). This is true in finance and marketing, and it is just as true for talent management. Staffing systems ultimately succeed or fail based on how they affect the decisions of human resource professionals, but also the decisions of those outside the human resource function, including applicants and potential applicants, as well as the recruiting and hiring managers who must ultimately carry out the staffing processes.

These decisions include how to invest scarce resources (money, time, materials, etc.) in staffing techniques and activities such as where to recruit, what selection and screening technologies to use, whether to train or provide incentives to recruiters, and what sorts of offer packages to construct. They also include decisions by candidates about whether to entertain or accept offers, and by hiring managers about whether to devote time and effort to landing the best talent. Increasingly, such decisions are being made in conjunction with line managers and other key constituents.

Thus, effective staffing requires measurement designed to diagnose the quality of the decisions of managers and applicants. Typical staffing measurement systems fail to reflect these key decisions, so they end up with significant limitations and decision risks. For example, selection tests may be chosen solely based on their cost and predictive relationship with turnover or performance ratings. Recruitment sources may be chosen solely based on their cost and volume of applicants. Recruiters may be chosen based solely on their availability, and evaluated only on the volume of applicants they produce. This was the problem in the first example, where the fixation on yields from colleges blinded the decision makers to potential cost-of-quality difference between the sources. Staffing is typically treated not as a process, but as a set of isolated activities (recruiting, selecting, offering/closing, etc.). This was the failure in the second example, where the staffing activity of expanding recruitment sources was considered in isolation. That prevented seeing the link between expanded recruitment and enhanced offer acceptance.

Finding a remedy for these failures requires that we systematically approach staffing from a decision-based and process-based perspective. This means that we explicitly consider the outcomes of the process, the key process steps, and then apply a framework that integrates them. In the next sections, we develop that framework.

Step One: Defining the Outcomes of the Process

The first step in any process analysis is to define the desired outcome. This is a step that appears to be largely overlooked in many staffing measurement systems. Why else would we see such a preponderance of staffing measures focused only on costs or headcount, when clearly the value of staffing systems is reflected in the quality of talent obtained and retained? The research we described earlier vividly shows that most organizations simply don't feel that they have a good handle on the quality of staffing.

Of course, there is a vast variety of potential measures of staffing effectiveness, and it is not our purpose here to provide a comprehensive list. Rather, we suggest that staffing quality measures generally fall into one of the seven categories shown in Exhibit 7. These are similar to the generic categories suggested by Fitz-Enz (1995). They also reflect the categories of linking elements in the HC BRidge™ framework (Boudreau & Ramstad, in press): Cost, time and volume reflect *Efficiency*; Diversity, and quality attributes reflect *Effectiveness*; Customer satisfaction and value impact reflecting *Impact*.

Exhibit 7

Defining the Measurable Goals

- Cost of Activities
- Time of Activities
- Volume and Yield
- Diversity (or Compliance)
- Customer/Constituent Satisfaction
- Quality Attributes of the Talent
- Value Impact of the Talent

Cost of Activities would include measures that translate the resources used by staffing activities into dollars. Techniques for calculating such costs have been developing for decades. They can be traced to some of the earliest work on human resource accounting (Flamholtz, 1999) and are now widely available. Generally, such systems track the activities involved in acquiring, developing and separating employees, and then attach costs to those activities. The Saratoga Institute, for example, provides a standard array of such costs, and gathers data allowing firms to benchmark their costs against others in the database (Fitz-Enz, 1995). Typical elements include the direct costs paid to headhunters, job boards, employees who refer applicants, etc. Perhaps the most typical version of this measure is cost-per-hire, which sums the costs of all activities involved in identifying, choosing and hiring applicants, and divides by the number of hires.

Time of Activities would include time-to-fill-vacancies and time elapsed between process stages (e.g., the time from interview to offer acceptance, etc.). Elapsed time is distinct from the costs of the hiring process itself, in that it generally reflects lost value due to unfilled vacancies. It is also an important signal to constituents such as hiring managers – because filling vacancies on time is a minimum requirement for a credible staffing process.

Volume and Yield includes measures that track the number of individuals passing through the different stages of the staffing process. Typical measures would include the total number of applicants, or the number of hires divided by the number of applicants. Yield rates can be calculated using any combination of the volume measures, with the most typical being the yield of new hires from the total number of applicants, or the yield of acceptances from the total number of offers made. It is not unusual for organizations to calculate volume or yield rates for each stage of the staffing process. The volume of employees retained also falls here, including turnover rates and retention rates.

Diversity and EEO Compliance includes measures related to the demographic and other characteristics of those passing through the staffing process. This includes characteristics tracked by the U.S. and other governmental compliance agencies, including race, national origin, religion, age, gender, disability, etc. Existing staffing measurements often track these characteristics at different stages of the staffing process, such as the number females who apply and are subsequently given offers. This is similar to analyzing volume, as described earlier, but refines it by focusing on demographic characteristics. We will illustrate this in a moment. Organizations have begun to expand these characteristics to reflect a broader definition of diversity.

Customer or Constituent Reactions include judgments about the quality of the process, or impressions about its attractiveness. One measure would be a survey of new employees on their satisfaction with the staffing process. Hiring managers are often asked their opinion about whether the staffing system meets their needs. Researchers have frequently measured applicant reactions to different elements of the staffing process, including the behavior and characteristics of recruiters, selection tests and processes, and recruitment advertising. Other important constituents might include customers, who may form impressions of the company from recruitment messages and advertising, as well as the opinions of acquaintances who have experienced the staffing process.

Quality Attributes of the Talent includes *predictive* quality measures, such as selection tests, recruiter or interviewer ratings, biographical information, etc. These often serve as proxies or signals of the individual's eventual contribution to the organization. After hiring, *concurrent* quality measures such as ratings of potential, competency levels, training completed, career history, etc. would also fall into this category. Such measures are unfortunately often overlooked as staffing process measures, as we shall see.

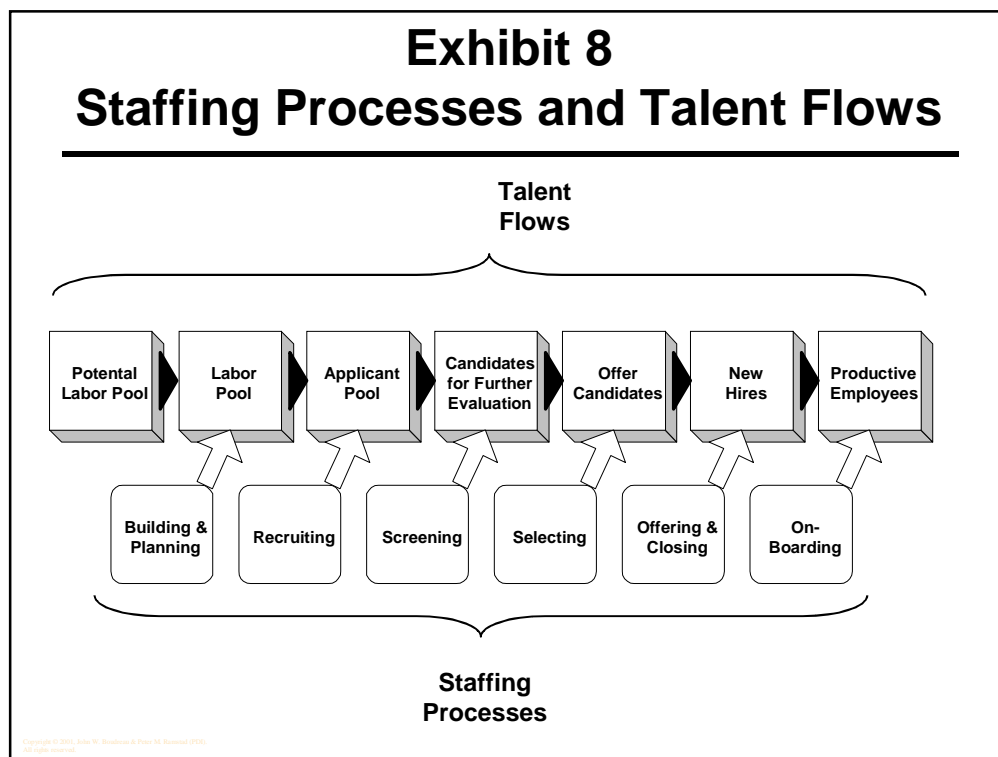
Value Impact of the Talent includes measures of the contribution of individuals to the goals of the unit or organization. Such contributions will be reflected in the actual job performance and other contributions that individuals make, as reflected in sales, product ideas, patents, performance ratings, etc. As with the quality attributes, it is surprising how little use is made of measures of talent value in evaluating the staffing process.

A significant missed opportunity in most organizations is to systematically use the measures that exist to understand and enhance their staffing processes. In most organizations, there are existing measures being collected that could be related to every category of staffing outcomes. In fact, many organizations have available measures in all of the categories. However, it is just as notable that these measures are often used in isolation, not linked to the staffing process at all, or applied to only one staffing process element. For example, performance ratings are rarely tracked to earlier staffing stages. Do high performers tend to more often come from certain recruiting sources? Are high performers more frequently induced to join the organization when they have interviewed with certain units or managers? Despite well-developed performance measures, these questions often go unanswered. The same is true for other available measures of employee quality, such as competency levels, potential ratings, leadership assessments, etc.

In a nutshell, organizations often miss significant opportunities simply because they don't systematically connect their existing quality measures with the elements of their staffing process. So, now that we have defined the measures, we need to systematically define the staffing process.

Step Two: Defining the Staffing Process Stages for Measurement

The second element of a decision-based staffing measurement system is a systematic definition of the staffing process and its components. Exhibit 8 contains the process model we propose.



The staffing process is a series of stages through which flow groups of individuals comprising the “talent” resource (e.g., Milkovich & Boudreau, 1997). In essence, it is a series of filters, with each stage eliminating an additional subset of the original group of individuals. In Exhibit 8, the “talent flows” in the top row show the results of the filtering process, beginning with a potential labor pool that is winnowed through recruitment and selection down to a group who receive offers, and then is winnowed further as some accept offers and remain with the organization.

We use the term “necessary and sufficient conditions” (Boudreau & Ramstad, in press) from operations management, to describe these process outcomes, because they represent the essential conditions that must be achieved to produce a successful outcome. Such “necessary and sufficient conditions” actually exist for all human resource processes.

We find that many organizations have developed such process maps, often through applying “total quality” approaches to HR processes. Unfortunately, many of these processes seldom get farther than mapping the process and then tracking the costs or speed of its elements. This is a lost opportunity. The process needs to be connected to a more fundamental set of quality measures to truly accomplish the goal of process improvement.

The “staffing processes” in the lower row show the activities that accomplish the filtering sequence. Let’s take each step of the process in turn.

Building and Planning is the process through which individuals who could potentially become candidates actually become qualified to apply for available positions. “Building and Planning” activities include forecasting trends in the labor force and talent demands within the organization. It also involves direct intervention in the labor market to induce individuals to become better qualified for the talent needs of the future. For example, high-technology organizations, facing increasing demands for engineers and realizing that current college graduation rates will be insufficient to supply them, have instituted programs to encourage high-school students to become more interested in math, science and engineering. These organizations do not expect every high-schooler who eventually becomes an engineer to apply to their organization, but they do hope to increase the future number of engineers in the labor pool. Thus, the “potential” labor pool consists of everyone who might have the interest and capability to become an engineer, and the eventual “actual” labor pool consists of all those who actually become qualified engineers. Measurement of this stage of the process is frequently limited only to the cost and time invested in such programs. While organizations might track the overall number of individuals in the population with certain qualifications, it is rare to determine if particular organization initiatives have made a difference. One might, for example, ask visitors to the company web site if they had been influenced or inspired by specific organizational outreach initiatives (e.g., “did you every participate in the “young engineers” program sponsored by this organization?”).

Recruiting is the process that induces those in the labor pool to actually become applicants, by making themselves known to the organization. Recruiting aims to create a pool of the right number of applicants, with the optimum level and variability in potential value. Many organizations simply state that recruiting should produce the largest and highest qualified group of applicants possible. Recruiting activities include specific efforts to attract qualified individuals to apply, such as recruitment advertising, job fairs, online job posting, etc. It increasingly also encompasses less direct activities, such as tailoring company product or service advertisements to create an image that will attract candidates, and modifying the corporate web site to induce “passive” job seekers who visit the site to apply.

Why do we say recruiting should strive for “optimum” candidate numbers and quality rather than “highest?” Getting the largest and most-qualified applicant pool is extremely costly, and often not cost effective. The most effective applicant pools are often smaller (assuming that the yield is higher), and may even be less qualified than the maximum possible (assuming that the organization can augment their qualifications after they are hired). Thus, the optimum applicant pool is the one that best fits with the other elements of the staffing process (Boudreau & Berger, 1986).

Screening is the process that identifies which applicants should be evaluated further, and which should be either rejected or hired immediately. Often, screening is seen merely as weeding out clearly unqualified applicants. However, screening can often be most valuable as a way to weed *in* those candidates who are such good matches that there is no need to evaluate them further. In labor pools that are in short supply, we see recruitment practices that attempt to provide very high-quality candidates with an offer as soon as possible.

Screening involves careful consideration of risks and returns. The benefits of quick hires and saving resources must be played against the potential costs of making a poor hiring decision or missing “diamonds in the rough” that might have been revealed with further analysis. Yet screening activities are often measured only with regard to the cost and time of their activities, or by the number of candidates who survive the initial screen.

Selection rates the screened applicants to determine which of them will receive offers. It involves not only choosing the rating system, but also determining the appropriate decision rules. When the task is simply to fill all open positions, the decision rule can be to make offers to the top-rated candidate and down, until the positions are filled. However, in times of significant talent shortages, it may be prudent to consider candidates as “organizational assets” even if they don’t fit the particular position opening, but might be a good fit elsewhere. Thus, the measurement and evaluation of the selection system should encompass much more than its validity in predicting performance, but also its ability to predict broader elements of candidate “fit” with the organization. Yet, selection processes are often evaluated solely on the validity of their ratings against later job performance or outcomes (e.g., sales).

Offering & Closing is the process of setting and making the offer, and presenting it in a way that maximizes its chance of acceptance. Offers must not only be competitive in the labor market, but must be supported by communications after the offer is made, very akin to “closing a sale.” The objective of this process is to hire the highest-quality individuals who received offers.

The “offering and closing” stage is typically measured by the yield of hires to offers, yet success depends on the pattern of offer acceptances. Do the highest-quality applicants accept or reject offers? Are we forced to make offers to candidates who are marginally qualified? Answers to these questions require going well beyond the typical yield measures, that focus only on volume.

On-Boarding is the process of establishing the new hire in their position, removing barriers to their performance, and retaining them. The goal is to have new hires who are quickly performing at a high level, without undue resource constraints and barriers, and who stay with the organization. On-boarding activities frequently focus on removing barriers to performance, such as equipment that is not available on time or doesn’t work properly. They may also focus on ensuring that that new hire is appropriately oriented and mentored.

Many organizations have applied six-sigma analysis to the on-boarding process, by tracking and reducing the frequency of “defects” such as missing or non-working equipment, taking too long to process appropriate paperwork, or failure to establish a mentor in a timely way. A more complete measurement system would also focus on the effects of on-boarding in enhancing the quality and the tenure of new hires.

Integrating Measures with Process: The Staffing Supply-Chain Measurement Grid

Exhibit 9 shows the “Staffing Supply-Chain Measurement (SSCM) Grid” that integrates the measurement categories with the process steps. ***The grid provides a framework for evaluating where staffing measures are sufficient and where they may be lacking.***

Exhibit 9
Staffing Supply-Chain Measurement (SSCM) Grid

	Cost	Time	Volume	Compliance	Satisfaction	Quality	Value
Building /Planning							
Recruiting							
Screening							
Selecting							
Offering / Closing							
On-Boarding							

How completely do our measures cover the grid?

Organizations can use the SSCM grid to mark where they have many/few staffing measurements. The grid helps to identify the implications for the kinds of decisions that are supported by those measurements. For example, we find that for virtually all staffing processes, there are reasonably well-developed measures of activities, costs and time. In fact, many organizations have gone to great lengths to construct sophisticated systems that can display virtually any cost-time combination imaginable. “Cost-per-hire,” “time-to-fill,” “cost-per-accepted-offer,” etc. are just a few of the examples. Such systems can be useful and they offer tempting opportunities to provide a complex and rich array of dollar-valued measurements.

Yet cost and time measures used alone can motivate decisions to reduce the cost and time spent on staffing, but may overlook the effects that a fixation on efficiency has on the other elements shown in Exhibit 9, including volume, compliance and quality.

Compliance Illustrates a “Best” Case

In the U.S., there are well-developed laws regarding discrimination and equal employment opportunity for a number of identified demographic groups. “Compliance” refers to having the appropriate number or percentage of these demographic groups, compared to their representation in the population. Because the demographic groups are identified by law, their presence or absence can be tracked at all stages of the staffing process. So, compliance illustrates how staffing measurement systems create significant decision-support capability when they allow outcomes to be traced throughout the process.

Exhibit 10 illustrates the compliance measurement system, using the SSCM grid.

Exhibit 10			
Compliance as a Best-Practice Example			
	Cost	Time	Compliance
Building /Planning			Percent and number of key groups in the relevant region
Recruiting			Percent and number of key groups in our applicant pool
Screening			Percent and number of key groups who are screened in or out
Selecting			Percent and number of key groups who are selected for offers
Offering / Closing			Percent and number of key groups who accept offers
On-Boarding			Percent and number of key groups who stay and perform satisfactorily

In Exhibit 10, we use the term “key groups” to refer to any identified demographic group for which there is legal protection against discrimination, and thus goals for representation in the workforce. This could be extended to reflect a broader definition of “diversity” or “inclusiveness,” by redefining the group characteristics based on diversity or inclusiveness goals. Essentially, compliance can be measured as the number and percentage of these “key groups” in the workforce, compared to their representation in the labor market.

Though most organizations don’t realize it, their compliance analysis is among their best examples of systematic and decision-based staffing measurement. It is not unusual for organizations to have data on the number and percentage of protected groups at virtually every stage of the staffing process. Thus, organizations can systematically diagnose which elements of the staffing process contribute or detract from the goal of increased key group representation.

If unsatisfactory results are discovered at the *end* of the staffing process, such as too few members of key groups who stay and perform well, it is possible to measure and diagnose where the shortfall occurred. Did we attract a sufficient number? Did we lose them because we failed to make offers to them? Or, if we made sufficient offers, did we lose them because they didn’t accept our offers? It is often possible to examine the effects of investments in each stage of the process, and systematically alter them to focus on the greatest return. If we observe that we end up with too few key-group members, but we have attracted and made offers to a sufficient number, organizations often focus their investments on the Offering-and-Closing or the On-Boarding stages of the process. Then, they can continue to monitor all the steps in the process, to see if those particular stages improve. Because compliance information can be traced through all the staffing process stages, organizations can trace improvement in end results to investments in particular staffing process stages, and not simply try to guess where the improvement occurred.

Why does this kind of powerful decision support occur in the area of compliance? In part, it is because of the nature of compliance information. The same measures that are used to judge the final compliance outcome (number and percentage of key groups) are available right from the beginning of the process. Individuals' key-group status is generally observable when they apply (or even before through census or other data bases), and then it can be tracked throughout the process. It is also due to the attention to compliance driven by government regulations. What is often overlooked is that compliance provides a best-case benchmark. The same powerful diagnostic approach can be used for other staffing outcomes.

Cost and Volume Illustrates the "Medium" Case: Making the Best of Existing Data

The cost, volume and time of staffing activities are frequently recorded, but seldom used systematically. Rather, they tend to be used merely create and analyze staffing budgets. Exhibit 11 shows that when the SSCM grid is applied to existing cost and time information, it reveals new possibilities for better diagnosis and decision-making.

Exhibit 11			
Volume as a Medium-Case Example			
	Cost	Time	Volume
Building /Planning			
Recruiting			Number of applicants
Screening			Number of applicants screened in
Selecting			Number of applicants given offers
Offering / Closing			Number of candidates who accept offers
On-Boarding			Number of hires who stay

We can break down cost, time and volume data by process stages, to better diagnose how our expenditures affect our yields. The example from Exhibits 4, 5 and 6 showed the power this approach. By systematically analyzing the volume of individuals passing through each recruitment stage, and then calculating the cost to generate that volume, the organization was able to pinpoint where investments paid off, and where they didn't.

Cost, time and volume data are available or could be readily gathered in most organizations. Yet, without a systematic approach, the potential value of the information is lost, and it is used only to track and calculate staffing expenses. Expense tracking is necessary, but it is not a decision-based approach. Exhibit 11 shows how the SSCM grid allows existing data to be used well. Still, though this "medium" case is better than the typical use of the data, it falls short of a true decision system for staffing. That requires looking beyond volume, to quality.

Talent Quality Illustrates the “Worst” Case

For most organizations, if low-quality hires emerge at the end of the process, it is almost impossible to diagnose which part of the process is responsible. The “Quality” elements of the SSCM grid are usually woefully lacking in most organizations. Yet, if we can connect quality to the staffing process stages, we can create powerful tools for process improvement.

The recruitment sourcing example in Exhibits 1, 2 and 3 illustrated this. By adding a measure of the “A” hires, it was possible to see the folly of dropping a staffing source just because it produced low yields. This showed the power of connecting even one quality measure (“A” hires) to the steps in the recruitment process.

Exhibit 12 applies the SSCM grid to the issue of employee quality. Organizations typically have information on employee performance at the end of the process, but they have no way to link performance to the earlier stages of the process. ***A simple first step is for organizations to link staffing process information to individual employees, and maintain it over time.*** Imagine if each employee’s data record contained information on how they learned about the position opening, their recruitment source, the HR manager who led their hiring process, the hiring managers involved selecting and landing the candidate, their selection and recruitment ratings, etc. Then, performance data could be analyzed according to these staffing process elements, to answer questions about whether performance differs by recruiting source, hiring manager, staffing process ratings, etc.

Exhibit 12				
Quality as a Worst-Case Example				
	Cost	Time	Volume	Quality
Building /Planning				?
Recruiting			Number of applicants	?
Screening			Number of applicants screened in	?
Selecting			Number of applicants given offers	?
Offering / Closing			Number of candidates who accept offers	?
On-Boarding			Number of hires who stay	Performance of hires who stay

Linking performance information to staffing process stages is important, but if performance is the only quality measure, then quality data is only available for those who survive the entire process. That is like measuring a production process only using quality after products are delivered to customers!

Performance information can tell us about the quality at the end of the process, but without information on those involved in earlier stages who were not selected, we can really only guess at which process stages might provide the most improvement. Even in earlier example analyzing the “A” player yield, we conclude see that certain recruitment sources yield more “A” players per dollar spent, but we don’t know why. Perhaps certain recruitment sources produce better information about applicants, allowing better screening or selection. For example, some job boards might provide information on applicant employment experience or personal career goals that allows applicants to be screened more accurately. Perhaps some sources produce superior candidates because they funnel applicants to particularly talented hiring managers, who are good at landing the best ones. For example, a regional college may end up producing lots of “A” hires not because its students are better, but because of a great relationship between a hiring manager and faculty and students at that school. After seeing that the school produces many “A” players, an organization might decide to send lots of other managers to that school. This would produce very disappointing results, unless those new managers can duplicate the relationships of the first hiring manager.

So, the answer to a truly informative quality measurement system is to develop quality measures that are available at earlier stages in the staffing process. Again, the problem is often not a lack of measures. In most organizations, job candidates are assessed with tests, rated by both the HR professional managing the staffing process and the hiring managers who make the ultimate decisions, and each candidate often has provided a great deal of background information in their employment application and interview. If these data were simply identified so that they could later be tracked to the individual, it would be possible to examine the characteristics of candidates who survive each stage of the staffing process, and diagnose where the most significant quality improvements could be made.

Linking performance to staffing processes can offer a big improvement over traditional systems that fail to consider quality at all, but it still falls far short of the potential fully-developed decision system that we have described. If we could create quality measures at earlier stages in the process, we could do much better at diagnosing and improving the system.

Conclusion

Should organizations try to completely fill every cell of the SSCM grid? Probably not. The best measurement system creates measures that can have the greatest impact on decisions, and are not cost prohibitive. In fact, a significant advantage of the process-based measurement framework suggested here is precisely that it can help pinpoint where measurement improvements are likely to have the biggest effects. Nonetheless, for most organizations, it will be necessary to use measurements more fully and more carefully.

The interesting paradox is that most of the measures we have described here already exist in most organizations, or can be constructed with available products. The key is to integrate the measures with the staffing process, rather than isolate measures and staffing activities. This integration provides a disciplined approach to measurement and analysis that can significantly enhance the professional quality and results of the staffing process. Without such integration, staffing will continue to be approached as a set of isolated activities, and staffing measures will continue to provide incomplete or even misleading direction.

References and Further Reading

- 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.
- Boudreau, J.W. & Ramstad, P.R. (1999). Human resource metrics: Can measures be strategic? In P. Wright, L. Dyer, J. Boudreau & G. Milkovich (eds.) Strategic human resources management in the twenty-first century. Supplement 4 to G.R. Ferris (ed.) Research in personnel and human resource management, 75-98. Stamford, CT: JAI Press.
- Boudreau, J. W. & Rynes, S. L. (1985). Role of recruitment in staffing utility analysis. Journal of Applied Psychology, 70, 354-366.
- Chambers, E., Foulon, M., Handfield-Jones, H., Hankin, S. & Michaels, E. (1998). The war for talent. McKinsey Quarterly, 3 44-57.
- Fitz-Enz, Jac. (1995). How to Measure Human Resource Management. (2nd ed.) New York: McGraw Hill.
- Flamholtz, E.G. (1999). Human Resource Accounting (3rd ed.). Boston, MA: Kluwer.
- Milkovich, G. T. & Boudreau, J. W. (1997). Personnel/human resource management: A diagnostic approach (8th ed.). Homewood, IL: Richard Irwin, Inc.
- Rynes, S. L. & Boudreau, J. W. (1986). College recruiting in large organizations: Practice, evaluation and research implications. Personnel Psychology, 39, 729-757.
- Taylor, S.M. & Collins, C.J. (in press). Organizational recruitment: Enhancing the intersection of research and practice. To appear in G.L. Cooper & E.A. Locke, I/O Psychology: What we know about theory and practice. Oxford, UK: Blackwell.

About the Authors

John W. Boudreau

... is a professor of Human Resource Studies and Director of the Center for Advanced Human Resource Studies at Cornell University. His research includes integrating human resource and business strategy, metrics for the human resource (HR) competitive advantage, HR decision making, executive mobility and careers, HR information systems, organizational staffing and development.

His research has been published in and he has served on the editorial boards for the leading HR and management journals. His research has won the "New Concept Award" and "Scholarly Contribution Award" from the Academy of Management. His textbook, "Human Resource Management" is widely used in North America, and has been translated into Spanish, Czech, Korean and Chinese.

Professor Boudreau has taught his an award-winning "HR Metrics" course since 1985, and also teaches courses in "Online HR Research," "Staffing," "Training," and "Human Resource Information Systems."

Professor Boudreau has consulted and designed seminars in HR Management Decision Making, HR Metrics, and Human Resource Information Systems for companies such as Bristol-Myers Squibb, Chase Manhattan, Citigroup, Williams-Sonoma, Transamerica, SUN Microsystems, Kroger, GE, Schering-Plough, Mobil, IBM, Eastman Kodak, Chevron, and NYNEX. His research and consulting, spans the U.S., Asia, Australia and Europe. He also founded and directed the Central Europe Human Resource Education Initiative in the U.S., and the Czech and Slovak Republics. He Chairs the Academic Advisory Board of the California Strategic Human Resources Partnership (CSHRP), and is a member of the Board of Advisors for the Saratoga Institute.

Professor Boudreau holds a M.S.I.A. in Management and a Ph.D. in Industrial Relations from the Krannert School of Management at Purdue University.

Peter M. Ramstad

...is Executive Vice President, Strategy and Finance, for Personnel Decisions International (PDI). Over the past nine years, Mr. Ramstad has held various financial, systems management and business planning positions within PDI. As a result, he has had many opportunities to work first-hand with the core tools of management development, and organizational effectiveness. 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. Mr. Ramstad has focused on the management systems implications of such systems for HR strategy and HR measurement.