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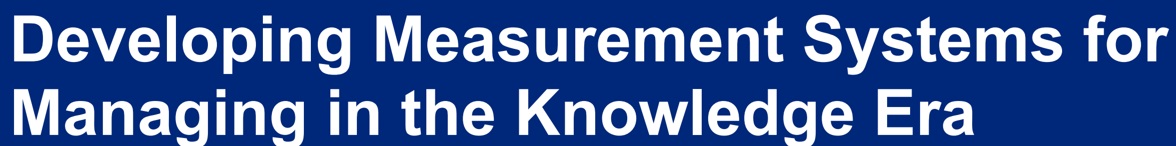

Developing Measurement Systems for Managing in the Knowledge Era

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Introduction

High-wage, developed nations such as the United States are now at least three decades into the knowledge era, but continue to operate under an accounting and reporting system that was designed for the industrial era that preceded the current one. There have only been three major economic eras (agrarian, industrial, and knowledge), so it is certainly not surprising that a complete transition from one to the next takes time. The full promise of the knowledge era will not be realized, however, until our current industrial-era accounting and reporting system – and the constraints inherent therein – is replaced with a new system that better reflects the way organizations function in today's knowledge era.

Nowhere are the existing challenges more severe than within the human resource function. During the industrial era, competitive advantage was determined by physical plant and equipment, and the superior technology embedded therein. "Labor" was, for all intents and purposes, merely a cost of doing business. In the knowledge era, however, just the opposite is the case. Human capital—the productive capacity embedded in people—has become one of the few sustainable sources of competitive advantage, while physical capital is now more or less a cost of doing business. Nonetheless, expenditures on physical capital and equipment are accounted for and reported as investments, while expenditures on human capital are accounted for and reported as a cost. Hence, our measurement systems are upside down and backwards, and require a major overhaul.

This remnant of the industrial era results in a chronic tendency to under-invest in human capital, relative to all other forms of investment. Essentially, far too many organizations succumb to playing the new (knowledge era) game within the framework of the familiar old (industrial era) rules. This results in a plethora of problems—ranging from a myopic use of outsourcing and offshoring to an excessive focus on short-run, quarterly earnings that are "earned" at the expense of higher, long-run profitability. The organizational antidote to this myopia is to develop alternative measurement systems that provide the information and insight necessary to manage people and the investments made in them as assets, rather than costs.

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The Hard-Nosed Economic Evidence

That's all well and good, you might be saying at this point. But where is the hard evidence with regard to this chronic tendency to under-investment in human capital?

For starters, we analyzed the effect of spending on employee education and training—a "cost" that is buried in overhead—on the stock prices of 575 publicly traded firms. From 1997 to 2001, hypothetical portfolios comprising those firms that made the largest investments in employee development *subsequently* had an annualized return of 16.3 percent for the five years, compared with an annualized return of 10.7 percent for the S&P 500 for the same period.

The inexorable conclusion from this finding is that the firms that were making large investments in employee development were under-priced at the time they made their investment. In other words, relative to their later performance, it turns out that the market had placed a higher relative value on those that had *not* made significant investments in their employees. Those companies that made the largest investments in employee development thus did so despite the pressure of financial markets, and their later performance suggested that it was the right decision. In sum, it is a big strategic mistake to do what the market rewards in the short run — treating people as costs — because it will penalize you for it in the long run.

In December 2001, we put this research into action and moved from tracking hypothetical portfolios to operating a money management firm that manages assets in a "live" portfolio. In January 2003, we added two additional live equity portfolios. At this point, the length of our track record (5 years of hypothetical portfolios plus 2.7 years of live performance) is still short by the standards of the investment industry. And we hasten to add that past performance is not a predictor of future performance, and that it is always possible to lose money. Nonetheless, we are pleased by the results, which are shown below in Table 1. Each of the three portfolios has outperformed the S&P 500 since inception.

Table 1. Performance of Bassi Investment Equity-Only Portfolios

	Return since 1/2/03*	**Return since 12/3/01***
Portfolio A (created December 2001)	31.0%	1.6%
Portfolio B (created January 2003)	36.7%	n/a
Portfolio C (created January 2003)	31.6%	n/a
S&P 500	*29.0%*	*1.2%*

*Portfolio performances as of 7/31/04, includes fees and dividends.

We believe that these results offer striking evidence on the broader issue, that most firms systematically under-invest in human capital management and development. It is an accepted tenet of economics that firms that are investing efficiently will invest in each of the "factors of production" (labor, capital, natural resources, etc.) up to point at which each is earning the same marginal return. If each dollar of investment in labor yields $2.00 in return, while investments in other areas earn $1.50 in return, then the efficient firm will increase the level of its labor investments – because of their higher returns – up to the point at which returns on additional dollars of investment are also $1.50. (Note that, in order to behave efficiently, the firm needs to be able to measure its investments and returns in each area.) If some firms are earning larger-than-normal returns in some areas, that can only be because they've not invested enough in those areas. Evidence of subsequent market out-performance for those firms that make the most significant investments in training thus reflects the larger-than-normal returns on that form of investment, and indicates that firms overall are under-investing in that area.

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The Measurement Antidote: Principles and Existing Systems

The evidence outlined above, important as it is, falls short of providing the specific tools and information that individual organizations can use to begin measuring and managing (and ultimately reporting) people as assets. Executives need a system for measuring their human capital, its development, and its effects on business outcomes in order to be able to counteract the chronic tendency in most organizations to under-invest in the management and development of people.

In order to achieve this broad objective, a successful measurement system should possess the following attributes:

1. *Descriptive*—at a minimum, a measurement system should produce summary statistics that provide a clear and succinct summary for each issue of interest. Descriptive data tend to focus on the occurrence of a phenomenon, its frequency or its intensity. For example, descriptive statistics can help an organization monitor the degree to which an important best practice is (or is not) actually being implemented throughout the organization.
2. *Credible*—a measurement system must be designed to provide the credible and unbiased insights needed to improve business results. Typically, any system designed primarily for the purpose of self-justification is quickly seen as suspect and is given little credence by senior executives. (Many ROI initiatives, for example, fall into this category.)
3. *Predictive*—a measurement system must produce statistics that help an organization predict where it is headed. Predictive measures are those that have been linked to the organization's capability to produce desired business results.
4. *Detailed*—the information produced by a measurement system must be sufficiently detailed and disaggregated to provide the insight needed on where action should be taken. For example, data on a given issue should be available across departments or business units in order to allow for a possible intervention to be targeted on those areas where it might be most successful.
5. *Actionable*—a measurement system should focus on those issues over which an organization can exert influence; other items (however interesting they may be) are unhelpful in enabling action to drive business results. The best example here is a counter-example; one well-known measurement system (the Gallup Q12) measures whether or not employees have a best friend at work. While this is indeed an interesting descriptive statistic (and might even be predictive and detailed), it is not an actionable piece of information and hence, should not be an area of focus within a measurement system.
6. *Cost-effective*—as important as a powerful measurement system is to a well-managed business, it most be cost-effective if it is to be sustainable.

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Over the past decade, progress has been made toward developing measurement system that possess some of these attributes, but to date, none possess all six of the attributes. The most important of the systems that have been developed are described below, along with an assessment of how each measures up to the attributes described above. The following section explores a new system that does meet the standards outlined above.

A Brief Assessment of Existing Systems

Balanced Scorecard: The Balanced Scorecard movement started with the best of intentions—to help organizations focus on the leading indicators of future business results (rather than focusing primarily on financial results, which are lagging indicators). Despite these good intentions, most Balanced Scorecard initiatives have fallen well short of their promise when it comes to the “people” component. Since few organizations have done the analysis to know definitely what “people measures” are the important drivers (predictors) of future business results, these initiatives typically end up providing relatively inane descriptive statistics (e.g., percentage of mangers who have been through a leadership development course).

Employee Satisfaction Surveys: Employee satisfaction surveys typically have the capacity to provide highly detailed, descriptive data. Rarely, however, has the necessary analysis been undertaken to determine if this descriptive information predict business results. Hence, the information often receives less attention than it might, because it is not viewed as significant.

Gallup Q12: Unlike most employee satisfaction surveys, Gallup has a well research-based measurement tool that has identified a core set of measures that predict business results. This work, however, has three primary shortcomings: (1) it is based on the implausible assertion that 12 key attributes are equally important in all organizations, (2) some of the information (e.g., do employees have a best friend at work) is simply not actionable, and (3) it is designed to be sold as a part of Gallup’s consulting services (which undermines the appearance of unbiasedness and impartiality).

HR Scorecards: HR Scorecards are typically used to analyze and benchmark the efficiency of an organization’s HR function. As such, they are descriptive but not at all predictive (since the efficiency with which HR transactions are accomplished has little discernible impact on either overall organizational costs or value creation).

Kirkpatrick Levels 1-4: Kirkpatrick’s four levels of evaluation have been used to evaluate the impact of training interventions. Although it is certainly necessary to know whether investments in training are generating their intended impact, these evaluations typically fail to answer an equally important set of questions about why the results are as they are. So while they can produce actionable information as to whether or not a training course should be continued, they typically fail to produce actionable insight into how to improve outcomes. These evaluations also have credibility problems (especially at levels 3 and 4) when they have not been well designed. Careful design and execution, however, can be quite expensive.

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ROI: Return on investment evaluations are sometimes used to evaluate training interventions (often referred to as Level 5 evaluations), as well as other HR initiatives. To do them well is quite difficult, because it requires that a credible estimate can be made of what would have happened in the absence of the intervention. Moreover, all too often ROI estimates are undertaken as a means of justifying budgets or staff positions. When they are motivated by any purpose other than providing the information and insight necessary for improving organizational outcomes, the results are immediately suspect. Even when properly done, however, their historical focus means that they typically fail to produce actionable information about future outcomes.

Watson Wyatt Human Capital Index: Like Gallup, Watson Wyatt has a well researched measurement methodology. However, suffers from the following shortcomings: (1) it is based on the implausible assumption that a single set of human resource practices and policies are equally important in all organizations, and (2) all of the information upon which it is based is provided by a single individual, and hence no disaggregated detail is available.

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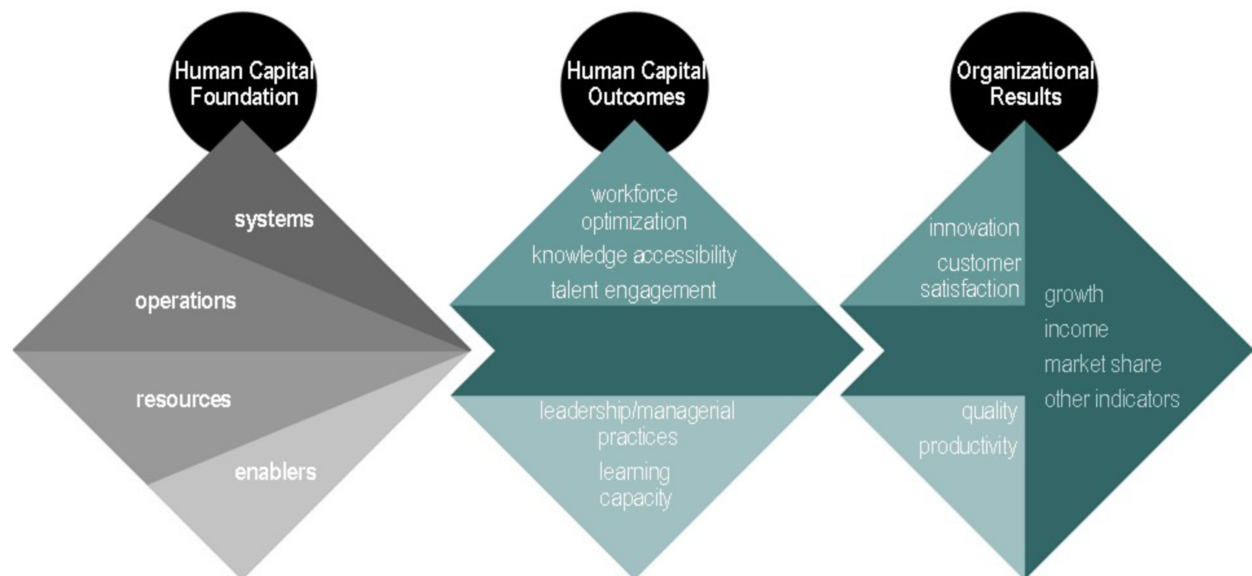
Toward "Next Generation" Human Capital Measurement Systems

In an effort to create a system that does meet all of the standards described in the previous section, we have worked in recent years with a diverse group of organizations interested in making headway on these issues. The product of this work is now embedded in a three-tier measurement framework (see Figure 1), which we refer to as the Human Capital Capability Scorecard (HCCS), and a corresponding set of data collection instruments that have been developed extensive research.

Figure 1. Human Capital Capability Scorecard Measurement Framework



The framework is designed to help organizations break free of a managerial perspective that is unduly influenced by short-term factors. The three measurement levels and the components within each are tightly linked to the existing knowledge base of best practices in organizational performance, culture and learning.

The level of measures on the far right in Figure 1 – organizational results – include traditional financial measures (e.g., income per employee), as well as measures of strategic goals and other key outcomes. The exact measures will, of course, vary somewhat with organizational type. Some possible measures of results in different organizations include the following:

- Publicly-traded firms might include total stockholder return among the key financial variables that they track (while not-for-profit and public sector organizations obviously would not).
- Organizations might include strategic goals that are the focus of its governing board. These measures could range from improving free cash flow in a large, Fortune 500 firm to improving student achievement in a school system.

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- Other key results are particularly important for not-for-profit and public sector organizations. These could range from event attendance (for arts organizations) to compliance with Congressional mandates (for a federal agency).

The measures at the organizational results level are in many ways the "easy" ones—virtually every organization already knows how to measure them. They are, however, *lagging* indicators—in that they reflect what has been produced in the past. To begin to understand the *leading* indicators of performance, it is necessary to dig down to the middle level—non-financial "human capital outcomes" (see Table 2 for definitions) that have consistently been identified in the research and best practice literature as the key drivers of future organizational performance.

This second level of measures is the domain in which the "people component" of most balanced scorecard efforts operate. Unfortunately, the measures that many organizations choose for this purpose are inadequately researched and consequently have little capacity to predict future business success, and can be quite cumbersome and expensive to implement. The HCC Scorecard framework solves these problems by deploying extensively researched, predictive measures in this area that can be derived quickly and inexpensively from the third (left-most) level of measures (an organization's human capital foundation).

Table 2. Definitions of Human Capital Outcomes

Category	Definition
Leadership/ Managerial Practices	The effectiveness of managers' and leaders' ability to optimize the organization's human capital through communication, performance feedback, efforts to instill confidence, and demonstration of key organizational values
Workforce Optimization	The organization's success in optimizing the performance of its workforce by means of developing and sustaining talent (skills, competencies, abilities, etc.) and guiding and managing its application on the job
Learning Capacity	The organization's overall ability to learn, change, and continually improve
Knowledge Accessibility	The extent of the organization's "collaborativeness" and its current efforts and ability to share knowledge and ideas across the organization
Talent Engagement	The organization's ability to retain, engage, and optimize the value of its talent

The human capital outcomes included in this second level of measures represent a significant advance over what is used by most organizations implementing Balanced Scorecard approaches. These outcomes measures have the dual advantage of being predictive and benchmarkable, both within and across organizations. Because they are merely descriptive, however, they themselves do not generate diagnostic, actionable insights.

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Such diagnostic information is available through the third group (human capital foundation measures), which includes factors that span human capital systems, enablers, resources, and operations. In a full-scale implementation of the HCCS, data on these factors would be collected through three separate diagnostic instruments: one would go to frontline employees (collecting information on enablers and operations), the second would go to managers (collecting information on systems), and the third would go to HR (collecting information on resources).

Although the details of the full set of HCC Scorecard instruments are far too voluminous for inclusion here, Table 3 contains a self-assessment tool that uses a similar framework to the HCC Scorecard. This tool was designed to enable an extremely quick evaluation of those aspects of an organization's work and learning environment that have been shown to be predictors of business results.

To use the tool, a respondent simply rates his/her organization on each statement using a 1-to-5 scale (from 1=strongly disagree to 5=strongly agree). For those items that the respondent is unsure about, a "best guess" is requested – along with the instruction to check the right column for that item to indicate the uncertainty.

Table 3: Human Capital Self-Assessment Tool

Factor#1: Leadership/Managerial Effectiveness	Score (1-5)	Not Sure/ Don't Know
Communicate. We are open and honest in our communications and have an effective process in place for communicating news, strategies and goals to employees.		
Trust. Our leaders consistently demonstrate our core values, and employees trust management's ability to plan and implement strategy.		
Facilitate. Managers throughout the organization understand that a vital aspect of their job is to eliminate barriers to effective work.		
Feedback. Employees throughout the organization consistently receive constructive feedback on their performance.		
Systems. We have highly effective systems and processes in place for identifying and developing our next generation of leaders, and ensuring smooth leadership transitions.		
Subtotal		

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Factor #2: Workforce Optimization	Score (1-5)	Not Sure/ Don't Know
Process. We continually seek to improve the key processes that we use to get work done, and employees are well trained on those processes.		
Conditions. Employees have access to the materials and technologies they need to be effective, and working conditions contribute to good performance.		
Opportunity. Whenever possible, we seek to fill open positions with qualified internal candidates.		
Time. The workload allows employees to do the job right.		
Systems. We have highly effective systems and processes in place for managing employees' performance and talents. This system enables us to view the overall proficiency of our workforce, helps employees realize their full performance potential in their current jobs, identifies development opportunities for those experiencing performance difficulties, and prepares motivated employees to progress in their career fields.		
Subtotal		

Factor #3: Knowledge Accessibility	Score (1-5)	Not Sure/ Don't Know
Teamwork. We are very good at both encouraging and enabling effective teamwork.		
Best practices. We are highly disciplined in our use of best practices, as well in our continuous review and updating of these practices.		
Collaboration. We provide employees with both the time and the space needed to promote knowledge sharing.		
Time. People have the time they need to make thoughtful decisions at work.		
Systems. We have effective systems in place that collect, store, and make information available among individuals.		
Subtotal		

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Factor#4: Learning Capacity	Score (1-5)	Not Sure/ Don't Know
Valued. Our leaders' behaviors consistently demonstrate that they value learning, and managers consistently make it a priority.		
Development. Employees have formal development plans in place, and these plans are used to help them achieve their career goals.		
Practical. Training is practical and easily accessed by employees.		
Effective. We consistently evaluate the effectiveness of our training and development investments, and use these evaluations to improve our results.		
Systems. We have a learning management system that automates the administration of all aspects of training/learning events, provides reports to management, and includes features such as content management and skill or competency management.		
Subtotal		

Factor#5: Talent Engagement	Score (1-5)	Not Sure/ Don't Know
Job Design. Employees find their jobs to be interesting and meaningful, and understand how they contribute to the organization's success.		
Trust. Employees can communicate freely with their managers, and trust their co-workers to get the job done.		
Reinforcement. We do a good job of orienting new employees to their positions, and we are also good at recognizing the accomplishments and achievements of incumbent employees.		
Time. Employees are able to achieve an appropriate balance between work and home.		
Systems. We have systems in place that help us retain good performers by continually evaluating trends in employee engagement. We use the information from these systems to determine the key drivers of productivity and customer satisfaction.		
Subtotal		
TOTAL SCORE		

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Used as a self-assessment, the factors outlined in Table 3 provide two pieces of quick information: (1) an extremely rough estimate of an organization's effectiveness in human capital management, and (2) an estimate of how much an organization actually knows about key attributes of that effectiveness. Scores are interpreted as follows:

- 112 to 125 indicates a highly effective organization with regard to human capital management
- 97 to 111 indicates that an organization is making good strides with regard to its human capital management
- 81 to 96 indicates that an organization has substantial work to do
- 80 or below indicates serious human capital management problems

The number of items marked "Not Sure/Don't Know" is also revealing. More than one or two "don't knows" is a clear indication that an organization does not have sufficient information to optimize its return on people.

It should be noted that, although the framework of the self-assessment tool is consistent with that of the HCC Scorecard, the HCCS is designed to capture significantly more extensive, detailed information, from a large number of individuals throughout an organization.

An Example of the HCCS Framework in Use

American Standard – an established global manufacturer in the areas of air conditioning systems, bath and kitchen products, and vehicle control systems – has tracked detailed information in the Figure 1 categories over the past three years, and has used this information to manage its talent across and within its major business units. The indices have become an integral component of American Standard's strategic management process, feeding into and improving its balanced scorecard measures and its performance management system.

The first level of data (i.e., organization results) is collected through an instrument designed for completion by finance executives or other selected organizational leaders. It collects information at a disaggregated level (e.g., sales office and/or manufacturing plant). All of the data required for the second and third levels (human capital outcomes and foundation) are collected through diagnostic questionnaires. One is designed for the HR function and collects data on resources, a second for line executives collects information on systems, and a third for front-line employees collects information on enablers and operations. As is the case with the data collected on business results (from finance executives), this information is collected so that it can be disaggregated by business unit (and hence, linked to business results for that unit).

We worked with American Standard to examine the relationship between its five summative human capital index scores and an internal American Standard summary measure of financial results and growth trends in its U.S. sales offices. The analysis found a clear relationship between the human capital scores and subsequent summary sales measures across sales offices.

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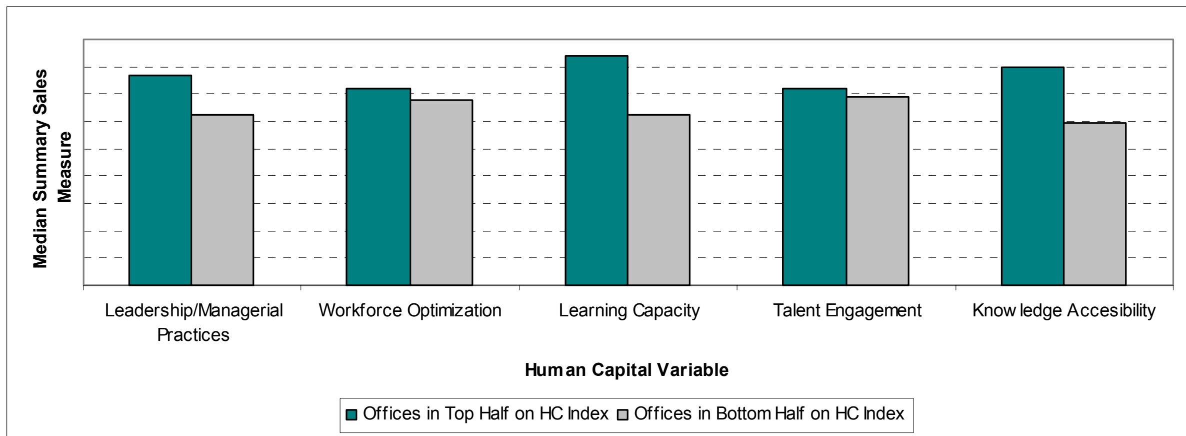
For each of the five indices, the sales offices that were in the top 50 percent of all offices in their score on the given index also had a higher median summary sales score. Depending on the specific index, the median sales scores were between 6 and 35 percent higher for offices in the top half of the human capital distribution. For details, see Figure 2 below (the specific levels of the summary sales data are not available for publication and therefore their values are not included on the y-axis). The largest differences were seen between the top half and the bottom half in their scores on Learning Capacity and Knowledge Accessibility.

Figure 2. Median Summary Sales Office Measures, American Standard, by Top Half/Bottom Half on Human Capital Variables



The combination of summary findings like those included in Figure 2 with more detailed information from the foundation factors scores from individual sales offices (not shown here) provided American Standard with the tools and measures to clearly identify specific human capital initiatives that will results in the greatest improvements in sales productivity. This has caused them to increasing their focus on the elements that constitute the "learning capacity" index as the most important ones for improving business results.

The Senior Vice President for Human Resources at American Standard, Lawrence Costello, describes the impact of the HCCS findings in this way: "For the past three years, American Standard has been creating a much more strategic process for investing in the development and management of our people. The missing piece for us was a way to link our investments to bottom line results. Our human capital measurement methodologies created that link, helping us to develop a clear road map for improving business results. Equally important is our improved capacity to persuade managers to make the necessary investments by providing them with compelling evidence on the bottom line impact that results from improved development and management of their people."

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Conclusion

Human capital is an important predictor of an organization's business results. Existing accounting and reporting standards in the United States, however, do not reflect this importance, meaning that organizations require a separate system for measuring and managing their human capital and its development. Significant progress has been made toward developing such systems, including the attributes necessary to help organizations correct a chronic tendency to under-invest in the management and development of people—a tendency that is very damaging in the knowledge era. The crucial next step is to merge the best elements of the balanced scorecard, employee surveys, and ROI analysis. As the HCC Scorecard example outlined above demonstrates, this step is, in fact, achievable.

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Selected Bibliography

In constructing the conceptual framework that we have outlined here, we culled through an enormous body of literature spanning a wide variety of disciplines. The work that we were most influenced by, however, was a handful of rigorous, large-scale empirical studies that have successfully linked a variety of dimensions of human capital development and management to future financial performance.

Jonathan Low and Pamela Cohen Halafut, *Invisible Advantage: How Intangibles are Driving Business Performance,* Perseus Publishing, 2002, have identified the quality of human capital as one of the four most important determinants of a firm's future financial performance (along with networks and alliances, brand equity, and technology and processes).

Marcus Buckingham and Curt Coffman, *First, Break all the Rules: What the World's Greatest Managers do Differently*, Simon & Schuster, 1999 (see especially the appendices) have statistically linked the quality of management in driving retention of employees, customer satisfaction and productivity.

Brian Becker, Mark A. Huselid, and Dave Ulrich, *The HR Scorecard: Linking People, Strategy, and Performance*, Harvard Business School Press, 2001 (see especially the appendix) have statistically documented the impact of high performance work practices on financial results.

Bruce Pfau and Ira Kay, *The Human Capital Edge: 21 People Management Practices Your Company Must Implement (or Avoid) to Maximize Shareholder Value*, McGraw-Hill, 2002 (see especially the appendix) have found that organizations with the best human capital practices provide returns to shareholders that are three times greater than those of companies with weak human capital practices.

Laurie Bassi and Mark Van Buren, *Measuring what Matters: Core Measures of Intellectual Capital*, ASTD, July 2000, Product #190016 have documented the link between investments in employee development, employee satisfaction and retention, and customer satisfaction.

Finally, our own work has focused intently on the impact of investments in employee education and training on financial performance. A non-technical summary of this work can be found in Laurie Bassi and Daniel McMurrer, "How's Your Return on People?" *Harvard Business Review*, March 2004. A more detailed version of the economic logic behind and the public policy implications of the under-investment in human capital can be found in "Are Skills a Cost or an Asset?" (forthcoming) in the *Milken Review*.

An extensive bibliography of the economics and finance literature is available in one of our white papers, "The Impact of U.S. Firms' Investments in Human Capital on Stock Prices," June 2004. Available at www.mcbassi.com. An annotated bibliography is available from the authors upon request.

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