

**DEVELOPING A SYSTEM FOR ASSESSMENT OF ORGANIZATIONAL
PERFORMANCE USING BALANCED SCORECARD
APPROACH AND SAP R/3**

By

Gary Baker, Ph.D.

Department of Management and Marketing

Sam Houston State University

Huntsville, TX 77341

and

Kathleen M. Utecht, Ph.D.

Department of Management and Marketing

Sam Houston State University

Huntsville, TX 77341

Abstract

Achieving strategic objectives through effective organizational performance is a typical feature of corporate life. Traditional barometers of performance include productivity, quality, sales, revenues, and, more recently, Human Resource Management (HRM) practices. Of particular interest in this latter gauge, not only in determining how it contributes to organizational performance and the bottom line, but also how HRM practices are measured.

While measuring HRM practices remains a challenge, it appears that gathering information and generating reports on HRM transactions, both independently and in relation to other functional areas of business, can be facilitated using Enterprise Resource Planning (ERP) systems, in general, and SAP R/3 in particular. ERP systems enable the sharing of information across the organization's business processes which promotes accurate reporting and effective decision making: hallmarks critical to effective performance.

Additionally, it is suggested that a more accurate assessment of corporate performance may be achieved using a management tool known as the Balanced Scorecard (BSC). The BSC approach is based on the philosophy that typical indicators of performance are identified and assessed in terms of how these performance indicators contribute to the achievement of the overall corporate strategy and mission. BSC

indicators of performance include financial, growth, internal business functioning measures, and, importantly, a human resource assessment.

The purpose of this paper is to 1) generate a conceptual framework which ties together HRM practices and HRM transactions in SAP R/3, 2) highlight the integration of HRM transactions with other functional areas in SAP R/3, and 3) examine the relationship of these integrative features to the Balanced Scorecard. These conceptual linkages will contribute to a better understanding of the role of HRM, SAP R/3, and the Balanced Scorecard in enabling effective organizational performance.

KEYWORDS: Human Resources, Balanced Scorecard, ERP, SAP R/3

INTRODUCTION

Achieving strategic objectives through effective organizational performance is a typical feature of corporate life. Traditional barometers of performance include productivity, quality, customer satisfaction, sales, and revenues. Another measure which is becoming increasingly important pertains to measuring the strategic value of typical Human Resource Management (HRM) practices. For example, one traditional HRM practice is the allocation of compensation and benefits to employees which often accounts for the largest controllable expense in corporations. And, travel and entertainment expenses, related to the HRM practice of training and development, account for the second largest controllable corporate expense. These and other expenses associated with the human resource function should be monitored in terms of their relationship to, and impact on, organizational performance.

One approach to facilitating the measurement of organizational performance is a management tool: the Balanced Scorecard (BSC). Using the Balanced Scorecard approach, indicators of performance are identified and assessed in terms of how these indicators contribute to the achievement of the overall corporate strategy and mission. Typical indicators of performance in the Balanced Scorecard approach include financial, growth, internal business functioning measures, and a human resource assessment.

Enterprise Resource Planning (ERP) systems facilitate the gathering and dissemination of information across diverse areas of business in order to generate a more accurate measure of performance. ERP software is characterized by its fluid and seamless

integration of information across functional divisions and locations. This integration results in more accurate information and reporting of performance data enabling more effective decision making. SAP R/3 is an ERP software system composed of a suite of functional modules and applications including production, sales, distribution, accounting, and human resources. In addition, SAP R/3 includes a Strategic Enterprise Management (SEM) module with Balanced Scorecard applications.

The Balanced Scorecard and SAP R/3 can operate in tandem to promote the use of benchmarks of organizational performance by identifying indicators and measures of corporate performance, sharing and integrating performance-based data across functional areas of business, and enabling effective decision making in the attainment of corporate strategic objectives.

The purpose of this paper is to 1)generate a conceptual framework which tracks HRM practices and HRM transactions in SAP R/3, 2)highlight the integration of HRM transactions with other functional areas in SAP R/3, and 3)examine the relationship of these integrative features to the Balanced Scorecard.

THE CONCEPTUAL FRAMEWORK

HRM Practices

A typical functional area of business in any type of organization is the Human Resource function. Every organization is comprised of employers and employees, i.e., human resources, who are often viewed as an expense, and whose value to the company is often questioned and unmeasured. Indeed, recent interest has focused not only on how to measure human capital, but also on how to ascertain the value. How human resources contribute to the bottom line is often misunderstood and miscalculated in a work setting. Given this recent interest in gaining a better understanding, companies such as Dow Chemical, IBM, Cigna and others are devoting some attention to understanding and assessing this intangible asset (Bates, 2002).

More specifically, management of the human resources with regard to practices and decisions affects the acquisition and retention of this valuable resource which is receiving closer scrutiny. Hence, there has been an accelerated interest in more closely operationalizing or measuring HRM practices such as Job Analysis, Recruitment and

Selection, Training and Development, Performance Management, Compensation and Benefits, and Human Resource Information Systems to validate their effectiveness. For example, the practice of Recruitment and Selection can be assessed with regard to cost-per-hire and quality of hire; or Training and Development can be assessed in terms of training budget allocation and number of employees participating in training programs. Through audits and analytic techniques, the effectiveness of these and other HRM practices, and the decisions surrounding them, can be gauged (Noe, Hollenbeck, Gerhart, and Wright, 2006).

HRM Transactions in SAP R/3

The SAP R/3 (Systems, Applications, and Products in Data Processing) system facilitates the gathering and dissemination of information across various business units and locations. This ERP system was developed by the German company SAP AG and is installed in thousands of companies worldwide. Installations include almost every type of industry, including manufacturing, financial services, retail, and the public sector. Not surprisingly, many of these top corporations, including General Motors, Eli Lilly, DaimlerChrysler, Microsoft, Dow Chemical Company, Procter & Gamble, and Coca-Cola, currently use SAP R/3 applications across a wide variety of functional areas: Production, Finance, Accounting, Sales and Distribution and Human Resources.

The Human Resources module in SAP R/3 enables managers to perform a number of transactions typically associated with the HRM function. For example, as part of job analysis function, job descriptions can be developed and position vacancies created. In recruitment and selection, vacancies can be advertised and applications generated. In the training and development function of SAP R/3, employees can be booked into training programs. Using the SAP R/3 functionality for performance management, performance appraisals can be conducted using 360 degree feedback. In the compensation function, job evaluation using the Hay Point System can be conducted, and, in particular, with reference to external salary surveys. Using SAP R/3, employees can be enrolled in benefits, and the costs for employers and employees can be recorded. Finally, the Human Resources module of SAP R/3 enables the retrieval of information pertaining to the practices and the preparation of reports for decision making purposes.

Typical human resource management practices of job analysis, recruitment and selection, training and development, performance management, and compensation and benefits can be transformed into managerial transactions using the SAP R/3 applications see Table 1.

Table 1. Human Resource Management: A Comparison of Traditional Human Resource Management Practices and SAP R/3 Human Resource Transactions.

HRM Practices	SAP R/3 H R Transactions
Job Analysis and the Design of Work	Organizational Structure, Organizational Chart, Create Jobs, Positions, Job Descriptions
Planning, Recruitment, and Selection	Advertise Vacant Positions, Select Recruiting Sources, Enter Applicant Data, Hire Employees, Create Personnel File
Employee Training and Development	SAP Learning Solution, Qualifications Catalogs, Book Employees in Training Programs, Develop Career Succession Plans, Travel Management
Performance Management	Personnel Development, Create Performance Appraisals, 360 Degree Feedback
Pay Structures, Incentives, and Benefits	Compensation Management, Job Evaluation, Salary Surveys, Generate Salary Structures, Planned Compensation, Personnel Cost Planning, Enroll Employees in Benefits, Review Employer/Employee Cost Factors Associated with Benefits
Human Resource Effectiveness through Information Technology	Reporting, Manager's Desk Top, Employee Self Service

Integration of HRM Transactions with Other Functional Areas in SAP R/3

The thrust of an ERP system is to enable the sharing of information and data across functional areas of business, particularly in the sharing of performance-based data. Using information rich technology systems to promote the retrieval and dissemination of data across business processes promotes sharing of relevant useful data (Davenport, 1998). This sharing of data allows more accurate and timely reporting, enabling more effective decision making and improved organizational performance.

Doane (1996, 1997) describes how the SAP R/3 suite of applications promotes the sharing and integration of information across areas such as Production (PP), Accounting (FI and CO), Sales and Distribution (SD), Information Systems (IS), and Human Resources (HR). The depth of the HR functionality in the SAP R/3 system is comprehensive and the linkage between traditional best practices and their software functionality is increasing.

The SAP R/3 HR component is integrated with other functional areas of business which contain the traditional indicators of corporate performance. This enables an understanding of how transactions in HR will affect transactions in areas such as Production, Sales & Distribution, or Accounting. Specific examples include the relationship between staffing a work center and productivity, the relationship between pay incentives for sales employees and sales volumes, and the relationship between travel management and financial accounting expense monitoring, as reflected in Table 2.

Table 2. Human Resource Management Practices and Transactions: Integration with Functional Areas of Business in SAP R/3

HRM Transactions	Integration with Functional Areas of Business in SAP R/3
Job Analysis, Organizational Structure	FI - Create Cost Centers and Account Assignments; PP - Create Work Centers
Recruitment, Selection	PP, FI, CO, SD - Staffing Departments
Training and Development	CO - Budget Allocation for Training; FI - Travel Management and Expenses
Performance Management	PP, FI, CO, SD - Performance Appraisals
Compensation and Benefits	PP - Overtime Pay; SD - Incentives for Sales Reps; FI - Wage and Salary Reports
Human Resource Information Systems	IS – Workforce Composition and Diversity Statistics; EEOC and Legal Reports; CO- Productivity Reports; Profitability Reports

Relationship of Integrative Features to the Balanced Scorecard

The SAP R/3 suite of applications is continuously evaluated and updated to provide the most sophisticated and state-of-the art information system (Bauer, 2002). SAP has added a solution or application to promote the development of specific tailored

information for strategic planning, known as the Business Information Warehouse (BW). By enabling companies to monitor strategy, the ability to provide a balanced scorecard for human resource performance indicators becomes enhanced. SAP R/3's Strategic Enterprise Management (SEM) is on the cutting edge, not only in ensuring the accurate, timely, and relevant sharing of information as it relates to performance, but also in maximizing the reporting of the information as it pertains to the balanced scorecard. Integrating information generated through the SAP R/3 system can, indeed, have an impact on the balanced scorecard.

The Balanced Scorecard approach was developed by Kaplan and Norton (1996) and creates a partial performance management framework to translate an organization's mission and strategy into a set of performance measures. Sim and Koh, 2001, argue that unless a company can operationalize or accurately measure performance, an assessment of corporate performance will be less than accurate. Kaplan and Norton propose four sets of measures: financial, customer, internal business processes, and learning and growth. These measures are operationalized by sub-measures which correspond to business processes and provide an enterprise view that not only balances, but also integrates, indicators of performance. These sub-measures include cost reduction and productivity improvement under the financial category, and customer satisfaction and profitability under the customer measure. One common indicator of performance is a gauge of best practices in human resource management. Consequently, the balanced scorecard can be used to examine these practices and their relationship to, and impact on, other functional indicators of performance, such as productivity, quality, sales, and revenues (Cassell, 2001). When evaluating the practice of conducting employee performance appraisals, it is well known that several obstacles prevail. Questions abound with regard to what characteristics to measure, how the characteristics should be measured, the frequency of the measures, and the sources of appraisals, etc. (Noe, Hollenbeck, Gerhart and Wright, 2006; Oliveira, 2001). The emphasis of the Balanced Scorecard approach on metrics, from various perspectives, reinforces the notion that performance, whether corporate or employee, is critical yet difficult to measure. The linkage between HRM practices, SAP R/3 Functionality, and the Balanced Scorecard is evident. An example of how HRM

transactions and integration with other functional areas in SAP R/3 relate to the balanced scorecard is provided in Table 3.

Table 3. Human Resource Management Practices and Transactions: Integration with Functional Areas of Business in SAP R/3 and Relationship to Balanced Scorecard

HRM Practices and HR Transactions	Integration with Functional Areas of Business in SAP R/3	Relationship to Balanced Scorecard
Job Analysis and Structures in Human Resources	FI - Creating Cost Centers and Account Assignments; PP - Creating Work Centers	Strategy-Focused: Financial, Customer, Internal Business Processes, Learning and Growth
Recruitment and Selection	PP, FI, CO, SD - Staffing Departments	Customer Satisfaction; Match Skill Sets for Person/Job/Organization; Empowerment to Employees
Training and Development	CO - Budget Allocation for Training; FI - Travel Management and Expenses	Invest in People; Foster Creativity and Innovation; Provide Growth Opportunities; Value Intellectual Capital; Sophisticated Technology
Performance Management	PP, FI, CO, SD - Performance Appraisals	Managing Talent; Productivity; Quality Performance; Continuous Improvement
Compensation and Benefits	PP - Overtime Pay; SD - Incentives for Sales Reps; FI - Wage and Salary Reports	Responsiveness to Customer; Build Service and Support; Structure Rewards to Foster Integration
Human Resource Information Systems	IS – Workforce Composition and Diversity Statistics; EEOC and Legal Reports; CO - Productivity Reports; Profitability Reports	Organizational Integration; Leverage Diversity; Return on Investment; Stakeholder Communication and Value

SUMMARY AND RECOMMENDATIONS FOR FUTURE RESEARCH

It is suggested that strategic objectives will be achieved with effective corporate performance. Accurately measuring corporate performance remains a challenge, not only with regard to what indicators of performance should be measured, but also with regard to how to measure the indicators. This paper provides a framework for exploring some of these challenges. More specifically, it is argued that measuring the effectiveness of traditional HRM practices should be included as an indicator of corporate performance. Measuring the effectiveness of HRM practices can be facilitated using an Enterprise Resource Planning system such as SAP R/3. Such systems generate information, data, and, subsequently, reports, on HRM practices, independently, and in relation to other functional areas of business. Indeed, exploring the integration of HRM transactions with transactions in production, accounting, etc., can generate data critical to overall corporate performance. Finally, it is proposed that the Balanced Scorecard approach for measuring corporate performance be used since measuring HRM is a critical feature of this tool.

The premise of this paper is conceptual, and provides a frame of reference for thought. Additional research on this topic could include a more comprehensive investigation of HRM practices and their measurement. Specific examples of HRM transactions in SAP R/3 could be provided to demonstrate more clearly the value of ERP systems. A broader description of the Balanced Scorecard as a tool in SAP R/3 would also shed light on the specific applications. It appears, therefore, that this paper can serve as a springboard for more advanced thinking and research on the interrelationships regarding corporate performance, HRM practices, SAP R/3, and the Balanced Scorecard.

REFERENCES

- Bates, Steve. (2002). "Accounting for People," HR Magazine, October, Vol. 47, No. 10, pp. 30-37.
- Bauer, Sandra. (2002). "Personnel Management with the Balanced Scorecard," SAP.com Strategy," October, Week 43_1.asp.
- Becker, Brian E., Huselid, Mark A., and Ulrich, Dave. (2001). *The HR Scorecard*. Boston, Massachusetts: Harvard Business School Press.
- Brown, Mark Graham. (2000). "Keeping Score," Executive Excellence, November, Vol. 17, No. 11, p. 16.
- Cassell, Merrill. (2001). "The Human Factor," Financial Management, June, pp. 44-45.
- Davenport, Thomas H. (1998). "Putting the Enterprise into the Enterprise System," Harvard Business Review, July-August, pp. 121-131.
- Doane, Michael. (1997). *Capturing the Whirlwind*. Sioux Falls, South Dakota: The Consulting Alliance.
- Doane, Michael. (1996). *In the Path of the Whirlwind*. Sioux Falls, South Dakota: The Consulting Alliance.
- Kaplan, R.S. and Norton, D.P. (2001). "Leading Change with the Balanced Scorecard," Financial Executive, September, Vol. 17, No. 6, pp. 64-66.
- Kaplan, R.S. and Norton, D.P. (2001). "The Strategy-Focused Organization," Strategy and Leadership, May/June, Vol. 29, No. 3, pp. 41-42.
- Kaplan, R.S. and Norton, D.P. (1996). "Using the Balanced Scorecard as a Strategic Management System," Harvard Business Review, January-February, pp. 75-85.
- Kaplan, R.S. and Norton, D.P. (1993). "Putting the Balanced Scorecard to Work," Harvard Business Review, September-October, pp. 134-147.
- Kaplan, R.S. and Norton, D.P. (1992). "The Balanced Scorecard-Measures that Drive Performance," Harvard Business Review, January-February, pp. 71-79.
- McKenzie, Francine C., and Shilling, Matthey D. (1998). "Avoiding Performance Measurement Traps: Ensuring Effective Incentive Design and Implementation," Compensation & Benefits Review, July/August, Vol. 30, No. 4, pp. 57-65.
- Noe, Raymond A., Hollenbeck, John R., Gerhart, Barry, and Wright, Patrick M. (2006). *Human Resource Management*. New York: Irwin McGraw-Hill.

Oliveira, Jason. (2001). "The Balanced Scorecard: An Integrative Approach to Performance Evaluation," *Healthcare Financial Management*, May, Vol. 55, No. 5, pp. 42-46.

Sim, Khim Ling, and Koh, Hian Chye. (2001). "Balanced Scorecard: A Rising Trend in Strategic Performance Measurement," *Measuring Business Excellence*, No. 2, pp. 18-26.

Solomon, Charlene Marmer. (2000). "Putting HR on the Score Card," *Workforce*, March, Vol. 79, No.3, pp. 94-98.

ABOUT THE AUTHORS:

Gary Baker an Assistant Professor of Management Information Systems at Sam Houston State University. He received his B.S. from the University of Tennessee, M.S. from the University of Illinois, and Ph.D. from Texas A&M University. He has over 20 years of experience managing technology at Fortune 500 companies and has published articles on the implementation and use of technology.

Kathleen M. Utecht is a Professor Emeritus at Central Michigan University, and an Associate Professor of Management at Sam Houston State University. She received her B.A. from Elmira College, M.A. from the University of Lancaster, England, and Ph.D. from Michigan State University. Her teaching and research interests include Human Resource Management, Enterprise Resource Planning, and Six Sigma.