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# Cost, Quality and Time Outcomes of Onshore and Offshore Business Process Outsourcing

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## Cost, Quality and Time Outcomes of Onshore and Offshore Business Process Outsourcing

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### ABSTRACT

Firms are increasingly using onshore and offshore business process outsourcing (BPO) to manage their primary and support functions and achieve their strategic objectives. Despite the growing significance of BPO, there is limited understanding of the performance outcomes for firms that engage in BPO. To study the performance implications of BPO, we first develop a conceptual model based on literature from operations management, performance measurement and vendor management. We then validate our conceptual model by performing an empirical study of data from 47 publicly traded firms in the U.S. We find that a firm's performance measurement focus and strategy dictates whether the firm achieves quality, cost and/or time benefits from BPO, and that quality benefits from BPO lead to cost and time benefits. Our findings suggest that BPO clients and vendors should focus on quality first, and that quality benefits will lead to subsequent cost and time benefits.

### Keywords

Outsourcing, offshoring, performance, cost, quality, time.

### INTRODUCTION

Global firms in many industries are under growing pressure to simultaneously increase quality, reduce costs and decrease cycle time. In one effort to respond to this pressure, firms are reevaluating and reconfiguring the vendor and geographic platforms for their primary and support functions (Apte and Mason, 1995; Porter and Millar, 1985). In particular, firms are increasingly using onshore and offshore business process outsourcing (BPO) to manage their primary and support functions and achieve their strategic objectives (Tanriverdi, Konana and Ge, 2007; Whitaker, Mithas and Krishnan, 2011).

Despite the growing significance of BPO, there has been only limited study of the performance outcomes for firms that engage in BPO (Mani, Barua and Whinston, 2010). Most current published research on BPO focuses on supplier capabilities and best practices using the case-based perspective (Aron, Clemons and Reddi, 2005; Cullen, Seddon and Willcocks, 2005; Feeny, Lacity and Willcocks, 2005; Lacity, Feeny and Willcocks, 2003; Mani, Barua and Whinston, 2006), while some research considers BPO benefits using analytical models (Dutta and Roy, 2004).

To study the performance implications of BPO, we first develop a conceptual model based on literature from operations management, performance measurement and vendor management. We then validate our conceptual model by performing an empirical study of data from 47 publicly traded firms in the U.S., using BPO data from *InformationWeek* magazine and revenue and industry data from Compustat, Dun & Bradstreet and annual reports. We find that a firm's performance measurement focus and strategy dictates whether the firm achieves quality, cost and/or time benefits from BPO, and that quality benefits from BPO lead to cost and time benefits. We now discuss the relationship of a firm's performance measurement and vendor management practices with the firm's performance outcomes, and then discuss the relationship among the performance outcomes.

## Performance Measurement

In performance measurement, a firm establishes measurements for a business process, and uses the measurements to control the process and influence performance in the desired direction (Powell, Schwaninger and Trimble, 2001). The practice of performance measurement for large firms began over a century ago. By 1925, many of the standard cost accounting and management control practices still used today had already been developed (Kaplan, 1984). While the practice of performance measurement is well established, large firms have increased their focus on performance measurement in recent years, due to greater global competition, quality improvement initiatives, and the capacity of IT to facilitate increased data collection and analysis (Neely, 1999).

While earlier performance measurements were based almost exclusively on financial and accounting measures, current performance measurements now also incorporate operational measures such as quality and time (Kaplan and Norton, 1992). The inclusion of operational measures enables performance measurement to create a more comprehensive and forward-looking view, and links performance measurement more closely with business strategy (Kaplan and Norton, 1996).

The link between performance measurement and business strategy is important, because measures that are aligned with strategy provide information on whether the strategy is being implemented, and also encourage behaviors consistent with the strategy. A firm's choice of performance measurements strongly affects the behaviors of managers and employees. As the firm defines its performance measurements and competitive priorities, the firm can dedicate additional management attention, worker training, and financial and technical support to improve firm performance in those areas (Fawcett, Smith and Cooper, 1997). The relationship between strategy, measurement and performance also applies in an outsourcing context, where the client uses performance measurements to link vendor performance to client strategic objectives (Anderson, 1997). According to the creators of the widely-used Balanced Scorecard performance measurement system "What you measure is what you get" (Kaplan and Norton, 1992, p. 71). Because the choice of performance measurements demonstrates the firm's strategy and impacts the behaviors of managers, employees and outsourcing providers, we hypothesize that:

*H1a: Use of quality performance measurements for BPO is positively associated with quality benefits.*

*H1b: Use of cost performance measurements for BPO is positively associated with cost benefits.*

*H1c: Use of time performance measurements for BPO is positively associated with time benefits.*

## Vendor Management

Customer-vendor management practices at various stages of the outsourcing process contribute to the value created by outsourcing engagements (Levina and Ross, 2003). Two key stages of the outsourcing process are upfront vendor selection and ongoing contract management (Trent and Monczka, 2002). Two management practices associated with vendor selection are the request for proposal (RFP) and request for information (RFI) (Dai, Narasimhan and Wu, 2005), and one key management practice associated with contract management is the service level agreement (SLA).

In vendor selection, a firm may issue an RFP to a select number of qualified vendors. The RFP presents specifications for the outsourcing engagement and invites each vendor to present a bid. Firms use RFPs to generate competition among vendors and improve contract terms (Chaudhury, Nam and Rao, 1995). Prior research in a utilities context showed that the use of RFPs with pre-specified objective criteria yielded an 18% lower contract price (Cameron, 2000). Research in an IS outsourcing context showed that over 80% of firms used an RFP, and the use of RFP (including bids from the internal IT department) most frequently led to cost savings (Lacity and Willcocks, 1998).

Prior to issuing an RFP, the firm may need to gather additional information using an RFI. For example, the firm may be unable to identify the solutions that it may require, and/or the firm may be unable to identify technical or financial tradeoffs among various solutions (Bernard, 1997). In these situations, the firm may issue an RFI to a larger number of prospective vendors. The firm can use vendor responses to the RFI to better understand its needs and vendor capabilities, and to identify qualified vendors that may be eligible to receive an RFP. Once the firm receives vendor bids based on the RFP, the firm is then in position to evaluate the bids, negotiate and select the vendor.

Once the firm has selected the vendor, the firm and vendor may use an SLA to specify the level of quality that will be delivered (Chan, Chandrasekhar, Richman and Vasireddy, 2004). SLAs define the standards of performance, the methods of calculating performance, and the reporting procedures, and are widely used in IT outsourcing engagements. SLAs benefit the firm and vendor by reducing uncertainties, clarifying expectations and defining the quality of service that is necessary and acceptable. The use of detailed SLAs is associated with longer-term outsourcing relationships and positive outcomes for the firm and vendor (Kern, Willcocks and van Heck, 2002). Because RFIs and RFPs enable firms to generate bidding

competition among vendors, and because SLAs clearly define the required level of quality for vendor performance, we hypothesize that:

*H2a: Use of Requests for Proposal (RFP) and/or Requests for Information (RFI) for BPO is positively associated with cost benefits.*

*H2b: Use of Service Level Agreements (SLA) for BPO is positively associated with quality benefits.*

### **Quality, Cost and Time**

Over the past 20 years, quality management principles such as those outlined by Deming and Juran have become an established part of management practice (Hackman and Wageman, 1995). While these founders introduced different quality frameworks, they made a common contribution with the recognition that the cost of developing processes to produce high quality products is lower than the cost of producing low quality products. Low quality products can lead to increased inspection, rework, waste and warranty claims (Deming, 1982), and high quality products can result in a savings for these costs (Juran, 1989).

More recently, time has emerged along with quality and cost as a source of competitive advantage (Stalk, 1988). If multiple firms offer goods of comparable quality and cost, customers will select the firm that competes most successfully along the time dimension. A reduction in cycle time and lead time enables firms to be more responsive to their customers in delivering existing products and developing new products (Hum and Sim, 1996). Just as higher quality drives cost improvements, higher quality also drives time improvements. The quality focus on eliminating unnecessary activities leads directly to improved cycle time, and the quality focus on eliminating rework and scrap leads directly to improved capacity utilization and lead time (Schneiderman, 1988).

While quality management methodologies such as Six Sigma, ISO9000 and Total Quality Management (TQM) originated in manufacturing industries, they are now being applied in service settings such as information systems and outsourcing (Paulk, Weber, Curtis and Chrissis, 1995). The Capability Maturity Model (CMMI) for software development outsourcing providers is associated with improved software quality, and improved software quality drives improvements in cost and time (Harter, Krishnan and Slaughter, 2000; Krishnan, Kriebel, Kekre and Mukhopadhyay, 2000). Higher software quality is not only associated with lower cost in the software development process, but is also associated with lower cost in related infrastructure activities (Harter and Slaughter, 2003). While recent research suggests that offshore BPO can bring both quality and cost benefits (Dossani and Kenney, 2003), this relationship has not yet been empirically tested. Because quality improvements have been shown to drive improvements in cost and time in manufacturing and software development, we hypothesize that:

*H3a: Quality benefits from BPO are positively associated with cost benefits.*

*H3b: Quality benefits from BPO are positively associated with time benefits.*

We control for other relevant variables to account for alternative and complementary explanations. We control for firm size and industry sector to account for differences in outsourcing based on these characteristics (Ang and Straub, 1998). We control for the number of functional areas in which the firm outsources business processes, as the extent of BPO may impact benefits. We also control for whether the firm conducts offshore BPO, based on potential differences between onshore and offshore BPO due to differences in management culture and values, distance, time zones, and labor rates (Dibbern, Goles, Hirschheim and Jayatilaka, 2004; King and Torkzadeh, 2008).

### **RESEARCH DESIGN AND METHODOLOGY**

The study is based on data from the 2005 BPO survey conducted by *InformationWeek* magazine (Zaino, 2005). This one-time survey targeted IT managers in large firms, and collected detailed data on the specific topic of BPO within firms. *InformationWeek* is considered to be a reliable source of information, and previous academic studies also have used data from *InformationWeek* surveys (Bharadwaj, Bharadwaj and Konsynski, 1999; Santhanam and Hartono, 2003). Forty-eight firms provided complete responses to the variables of interest, and 20 of these firms represent Fortune 500 companies. Of the 48 firms, 23 are financial services firms, 13 are services firms, 11 are manufacturing firms, and one is a trade and logistics firm. We did not include the trade and logistics firm in the empirical analysis, because we control for industry and this firm was the only firm in that industry. Two of the remaining 47 firms are different subsidiaries of the same Fortune 500 parent company.

## Variable Definition

Table 1 summarizes the variables used in this study.

Variable	Description	Source
Quality Benefits	Four item formative index that indicates the extent to which a firm has received quality benefits from BPO.	<i>InformationWeek</i> survey
Cost Benefits	Four item formative index that indicates the extent to which a firm has received cost benefits from BPO.	<i>InformationWeek</i> survey
Time Benefits	Four item formative index that indicates the extent to which a firm has received time benefits from BPO.	<i>InformationWeek</i> survey
Quality Measurements	Four item formative index that indicates the extent to which a firm uses quality performance measurements to track the success of BPO engagements.	<i>InformationWeek</i> survey
Cost Measurements	Two item formative index that indicates the extent to which a firm uses cost performance measurements to track the success of BPO engagements.	<i>InformationWeek</i> survey
Time Measurements	Binary variable that indicates whether a firm uses time performance measurement to track the success of BPO engagements.	<i>InformationWeek</i> survey
RFx Index	Two item formative index that indicates whether a firm uses Request for Proposal (RFP) and/or Request for Information (RFI) prior to establishing relationships with BPO vendors.	<i>InformationWeek</i> survey
SLA	Binary variable that indicates whether a firm uses Service Level Agreement (SLA) with BPO vendors.	<i>InformationWeek</i> survey
Extent of BPO	Eleven point formative index indicating the number of functional areas in which a firm outsources business processes.	<i>InformationWeek</i> survey
Offshore BPO	Binary variable that indicates whether the firm conducts offshore business process outsourcing.	<i>InformationWeek</i> survey
Firm Size	Natural log of annual firm revenue.	Compustat, D&B, annual reports
Industry	Control for industry sectors of finance and services. Base category is manufacturing firms.	Compustat, D&B, annual reports

**Table 1. Variable Definition**

## Empirical Models

Our research framework above describes the relationship between performance measurements, vendor management practices, and quality, cost and time benefits. We use three-stage least squares (3SLS) to estimate our equations, because three-stage least squares supports a system of structural equations where some equations contains endogenous variables that are dependent variables of other equations in the system. As a robustness check, we also computed equation-by-equation analysis using ordinary least squares (OLS) in which the specification of one equation does not impact the coefficients of other equations in the system. The OLS estimates are similar in sign, magnitude and significance to the 3SLS estimates, which provides additional confidence in the 3SLS results.

Because it is possible that quality benefits, cost benefits and time benefits are determined simultaneously, we checked for endogeneity in our models using the Durbin-Wu-Hausman test and Hausman specification test. The results of these tests do not indicate endogeneity, and suggest that the OLS estimators are consistent. We also conducted a sensitivity analysis using ordered probit and found results similar to the OLS results.

## RESULTS

Consistent with hypothesis 1a, the use of quality performance measurements for BPO is positively associated with quality benefits. Hypotheses 1b and 1c are similarly supported, as the use of cost performance measurements for BPO is positively associated with cost benefits and the use of time performance measurements for BPO is positively associated with time benefits.

Hypothesis 2a predicted that the use of SLAs would be positively associated with quality benefits. This hypothesis is not supported. Hypothesis 2b predicted that the use of RFPs and/or RFIs would be positively associated with cost benefits. This hypothesis is not supported. Hypothesis 3a predicted a positive association between quality benefits from BPO and cost benefits. This hypothesis is supported. Hypothesis 3b predicted a positive association between quality benefits from BPO and time benefits. This hypothesis is supported.

The results for control variables also provide useful insights. Offshore BPO is positively associated with quality benefits at a moderate level of statistical significance. This suggests that some of the quality initiatives being implemented at offshore outsourcing providers are translating into higher quality business processes for clients. Compared with the manufacturing industry, the finance and services industries both enjoy higher time benefits from BPO, though the coefficient for services industries is only moderately statistically significant. These results suggest that information-based industries may be in better position to leverage BPO for cycle time benefits along with quality and cost benefits.

## DISCUSSION AND CONCLUSION

Our goal in this paper is to study the performance implications of onshore and offshore BPO. We developed our theoretical model by drawing on literature from operations management, performance measurement and vendor management. We obtained archival data from *InformationWeek* on BPO operations for 47 firms publicly traded in the U.S. We complemented the BPO operations data with revenue and industry information from Compustat, Dun & Bradstreet and annual reports.

### Findings

Consistent with our expectations, we find that quality benefits from BPO lead to cost and time benefits. Similar to the manufacturing and software development contexts, the upfront quality of business processes prevents rework and waste, which saves cost and time. Outsourcing vendors are able to provide quality BPO services through the training and development of their personnel and through the consistent application of process methodologies. As vendor personnel are properly trained and apply the methodologies, and as they gain experience on various engagements, they can make continuous improvements to business processes that will result in further cost and time benefits. By outsourcing the administration of non-core processes, the firm's management can also refocus its time to resolve more core and critical business issues that may result in still further cost and time improvements.

We also find that a firm's performance measurement focus and strategy dictates whether the firm achieves quality, cost and/or time benefits, consistent with previous operations management literature. The performance measurements selected by a firm indicate the firm's strategic and management focus. By complementing their strategic focus with the appropriate measurement capabilities and information systems, firms can track progress, identify shortcomings, and take corrective actions to ensure that their strategic objectives (quality, cost and/or time) are achieved.

Contrary to our expectations, we did not find a statistically significant relationship of RFPs and/or RFIs with cost benefits, or between SLAs and quality benefits. For the firms in our study, 83% of the firms used an RFP or RFI, and 90% of the firms used an SLA. Because such a high proportion of firms in our survey carried out these practices, there may not be enough variability in our data to identify whether these practices are important for BPO benefits.

For our control variables, one interesting finding is that while the extent of BPO is positively associated with quality benefits, it is negatively associated with time benefits. As a firm conducts BPO in a larger number of functional areas, the firm can access the expertise of vendors to achieve greater quality benefits across the functional areas. However, these quality benefits may come at the price of coordination complexity across multiple BPO vendors, which can impact the time dimension of firm operations. Firms must consider this potential tradeoff as they evaluate the extent to which they will conduct BPO across multiple functional areas.

Another secondary finding was that compared with the manufacturing industry, the finance and services industries both receive higher time benefits from BPO. Because the products for these firms are based on information goods, while the products for manufacturing firms are based on physical goods, this result suggests that information-based industries may be in better position to leverage BPO for time benefits along with quality and cost benefits. This finding is consistent with the observation that large financial services organizations were among the first to engage in large-scale offshore initiatives.

While the coefficient for offshore BPO was positive in the quality and cost equations, this variable was not statistically significant in any of the performance outcome equations. The investigation of potential differences between onshore and offshore BPO is one area for future research. Other areas for future research are discussed below.

## Limitations

There are three primary limitations to this study, all associated with the data used for analysis. First, the quality, cost and time benefits used as dependent variables are all perceptual in nature, rather than formal quantitative measures based on organizational records. For future research, it would be useful to have quantitative data on benefits that are achieved from BPO. Quantitative data would enable further testing on the relationships between quality, cost and time in BPO, to provide an understanding of the magnitude of these relationships. Second, the vendor and BPO practices such as RFP/RFI, SLA, and offshore are indicated once for each firm, rather than being indicated on an engagement-by-engagement basis. In fact, firms may or may not deploy these practices consistently across all BPO engagements. It would be useful to have more detailed data on the practices for each specific BPO engagement, to understand whether these practices may lead to different quality, cost and time benefits across different BPO engagements within the same firm.

Third, while the control variable Extent of BPO addressed the number of functional areas, our data did not cover the degree of outsourcing within each functional area. For example, the HR functional area covers many processes, including recruiting, training, payroll and benefits. Our measure did not indicate which processes within HR were outsourced, and the degree to which each process was outsourced. There may in fact be differences in performance outcomes between outsourcing an entire process and outsourcing part of a process.

## Implications and Future Research

This study makes two primary contributions. First, we integrate literature from operations management, performance measurement and vendor management to develop a conceptual model for quality, cost and time benefits from BPO. We test the conceptual model using data from a cross-section of publicly traded firms, and show that the relationships between quality, cost and time from the manufacturing and software development contexts also apply in the BPO context. Second, this paper extends the emerging literature on BPO. While recent research has investigated BPO benefits from the analytical and case-based perspectives, our empirical research investigates actual benefits across a broader range of firms, leading to greater generalizability of findings.

Our findings have at least two implications for managers. First, while previous research suggests that firms outsource with a primary focus on cost (Lacity and Hirschheim, 1994; Loh and Venkatraman, 1992), our findings suggest that managers should focus on quality first, and that quality benefits will lead to subsequent cost and time benefits. Second, our findings suggest that performance measurement is an integral component of success in outsourcing. Firms must understand the BPO benefits that are crucial to their business strategies, and must accurately measure these benefits in monitoring their outsourcing engagements. This is contrary to a frequent management tendency to “abdicate responsibility” once a process is outsourced to a vendor (Perkins, 2006).

There are several opportunities to extend this work. First, as described above, there is a need to study performance outcomes of BPO using quantitative measures of actual benefits. This would provide more insights on the magnitude of the relationships between quality, cost and time. Second, also as described above, there is a need to study performance outcomes of BPO using more specific information on the nature of each engagement. This would provide more insights on the specific mechanisms with which firms can structure each BPO engagement for maximum benefits. Third, because innovation may also be a performance outcome of offshore BPO (Prahalad and Krishnan, 2008), there is a need to study additional performance outcomes beyond the traditional outcomes of quality and cost.

To conclude, this paper empirically tests the relationship of performance measurement and vendor management practices with quality, cost and time performance benefits from BPO. We find that a firm’s performance measurement focus and strategy dictates whether the firm achieves quality, cost and/or time benefits, and that quality benefits from BPO lead to cost and time benefits. These results suggest that firms should place a strong focus on quality when evaluating processes and vendors for BPO, and that firms should incorporate a robust performance measurement system to ensure that their BPO objectives are achieved. These findings are important as firms pursue onshore and offshore BPO to leverage global resources and capabilities in the emerging global services economy.

## REFERENCES

1. Anderson, M.C. (1997) A Primer in Measuring Outsourcing Results, *National Productivity Review*, 17, 1, 33-41.
2. Ang, S. and Straub, D. (1998) Production and Transaction Economies and IS Outsourcing: A Study of the U.S. Banking Industry, *MIS Quarterly*, 22, 4, 535-552.
3. Apte, U.M. and Mason, R.O. (1995) Global Disaggregation of Information-Intensive Services, *Management Science*, 41, 7, 1250-1262.
4. Aron, R., Clemons, E.K., and Reddi, S. (2005) Just Right Outsourcing: Understanding and Managing Risk, *Journal of Management Information Systems*, 22, 2, 37-55.
5. Bernard, P. (1997) 10 Proposal-Related Questions Customers Should Be Prepared to Answer, *IIE Solutions*, 29, 7, 34-38.
6. Bharadwaj, A.S., Bharadwaj, S.G., and Konsynski, B.R. (1999) Information Technology Effects on Firm Performance as Measured by Tobin's q, *Management Science*, 45, 7, 1008-1024.
7. Cameron, L.J. (2000) Limiting Buyer Discretion: Effects on Performance and Price in Long-Term Contracts, *American Economic Review*, 90, 1, 265-281.
8. Chan, C.K., Chandrasekhar, U., Richman, S.H., and Vasireddy, S.R. (2004) The Role of SLAs in Reducing Vulnerabilities and Recovering from Disasters, *Bell Labs Technical Journal*, 9, 2, 189-203.
9. Chaudhury, A., Nam, K., and Rao, H.R. (1995) Management of Information Systems Outsourcing: A Bidding Perspective, *Journal of Management Information Systems*, 12, 2, 131-159.
10. Cullen, S., Seddon, P.B., and Willcocks, L.P. (2005) Managing Outsourcing: The Lifecycle Imperative, *MIS Quarterly Executive*, 4, 1, 229-246.
11. Dai, R., Narasimhan, S., and Wu, D.J. (2005) Buyer's Efficient E-Sourcing Structure: Centralize or Decentralize, *Journal of Management Information Systems*, 22, 2, 141-164.
12. Deming, W.E. (1982) *Quality, Productivity and Competitive Position*. Massachusetts Institute of Technology Center for Advanced Engineering Study, Cambridge, MA.
13. Dibbern, J., Goles, T., Hirschheim, R., and Jayatilaka, B. (2004) Information Systems Outsourcing: A Survey and Analysis of the Literature, *The Database for Advances in Information Systems*, 35, 4, 6-102.
14. Dossani, R. and Kenney, M. (2003) 'Lift and Shift:' Moving the Back Office to India, *Information Technologies and International Development*, 1, 2, 21-37.
15. Dutta, A. and Roy, R. (2004) Offshore Outsourcing: A Dynamic Causal Model of Counteracting Forces, *Journal of Management Information Systems*, 22, 2, 2005.
16. Fawcett, S.E., Smith, S.R., and Cooper, M.B. (1997) Strategic Intent, Measurement Capability, and Operational Success: Making the Connection, *International Journal of Physical Distribution & Logistics Management*, 27, 7, 410-421.
17. Feeny, D.F., Lacity, M.C., and Willcocks, L.P. (2005) Taking the Measure of Outsourcing Providers, *MIT Sloan Management Review*, 46, 3, 41-48.
18. Hackman, J.R. and Wageman, R. (1995) Total Quality Management: Empirical, Conceptual, and Practical Issues, *Administrative Science Quarterly*, 40, 2, 309-342.
19. Harter, D.E., Krishnan, M.S., and Slaughter, S.A. (2000) Effects of Process Maturity on Quality, Cycle Time and Effort in Software Product Development, *Management Science*, 46, 4, 451-466.
20. Harter, D.E. and Slaughter, S.A. (2003) Quality Improvement and Infrastructure Activity Costs in Software Development: A Longitudinal Analysis, *Management Science*, 49, 6, 784-800.
21. Hum, S.M. and Sim, H.H. (1996) Time-Based Competition: Literature Review and Implications for Modeling, *International Journal of Operations & Production Management*, 16, 1, 75-90.
22. Juran, J.M. (1989) *Juran on Leadership for Quality*. Free Press, London.
23. Kaplan, R.S. (1984) The Evolution of Management Accounting, *Accounting Review*, 59, 3, 390-418.
24. Kaplan, R.S. and Norton, D.P. (1992) Balanced Scorecard - The Measures that Drive Performance, *Harvard Business Review*, 70, 1, 81-89.
25. Kaplan, R.S. and Norton, D.P. (1996) Using the Balanced Scorecard as a Strategic Management System, *Harvard Business Review*, 74, 1, 75-85.
26. Kern, T., Willcocks, L.P., and van Heck, E. (2002) The Winner's Curse in IT Outsourcing: Strategies for Avoiding Relational Trauma, *California Management Review*, 44, 2, 47-69.
27. King, W.R. and Torkzadeh, G. (2008) Information Systems Offshoring: Research Status and Issues, *MIS Quarterly*, 32, 2, 205-225.
28. Krishnan, M.S., Kriebel, C.H., Kekre, S., and Mukhopadhyay, T. (2000) An Empirical Analysis of Productivity and Quality in Software Products, *Management Science*, 46, 6, 745-759.

29. Lacity, M.C., Feeny, D.F., and Willcocks, L.P. (2003) Transforming a Back-Office Function: Lessons from BAE Systems' Experience with an Enterprise Partnership, *MIS Quarterly Executive*, 2, 2, 86-103.
30. Lacity, M.C. and Hirschheim, R. (1994) Realizing Outsourcing Expectations, *Information Systems Management*, 11, 4, 7-18.
31. Lacity, M.C. and Willcocks, L.P. (1998) An Empirical Investigation of Information Technology Sourcing Practices: Lessons from Experience, *MIS Quarterly*, 22, 3, 363-408.
32. Levina, N. and Ross, J.W. (2003) From the Vendor's Perspective: Exploring the Value Proposition of Information Technology Outsourcing, *MIS Quarterly*, 27, 3, 331-364.
33. Loh, L. and Venkatraman, N. (1992) Determinants of Information Technology Outsourcing: A Cross-Sectional Analysis, *Journal of Management Information Systems*, 9, 1, 7-24.
34. Mani, D., Barua, A., and Whinston, A.B. (2010) An Empirical Analysis of the Impact of Information Capabilities Design on Business Process Outsourcing Performance, *MIS Quarterly*, 34, 1, 39-62.
35. Mani, D., Barua, A., and Whinston, A.B. (2006) Successfully Governing Business Process Outsourcing Relationships, *MIS Quarterly Executive*, 6, 1, 15-29.
36. Neely, A. (1999) The Performance Measurement Revolution: Why Now and What Next?, *International Journal of Operations & Production Management*, 19, 2, 205-228.
37. Paulk, M.C., Weber, C.V., Curtis, B., and Chrissis, M.B. (1995) *The Capability Maturity Model: Guidelines for Improving the Software Process*. Addison-Wesley, Reading, MA.
38. Perkins, B. (2006) Outsourcing: Out of Sight, Out of Mind?, *Computerworld*, March 13 (Issue 11), 52.
39. Porter, M.E. and Millar, V.E. (1985) How Information Gives You Competitive Advantage, *Harvard Business Review*, 63, 4, 149-160.
40. Powell, S.G., Schwaninger, M., and Trimble, C. (2001) Measurement and Control of Business Processes, *Systems Dynamics Review*, 17, 1, 63-91.
41. Prahalad, C.K. and Krishnan, M.S. (2008) *The New Age of Innovation: Driving Co-Created Value through Global Networks*. McGraw-Hill, New York.
42. Santhanam, R. and Hartono, E. (2003) Issues in Linking Information Technology Capability to Firm Performance, *MIS Quarterly*, 27, 1, 125-153.
43. Schneiderman, A.M. (1988) Setting Quality Goals, *Quality Progress*, 21, 4, 51-75.
44. Stalk, G. (1988) Time - The Next Source of Competitive Advantage, *Harvard Business Review*, 66, 4, 41-51.
45. Tanriverdi, H., Konana, P., and Ge, L. (2007) The Choice of Sourcing Mechanisms for Business Processes, *Information Systems Research*, 18, 3, 280-299.
46. Trent, R.J. and Monczka, R.M. (2002) Pursuing Competitive Advantage through Integrated Global Sourcing, *Academy of Management Executive*, 16, 2, 66-80.
47. Whitaker, J., Mithas, M., and Krishnan, M.S. (2011) Organizational Learning and Capabilities for Onshore and Offshore Business Process Outsourcing, *Journal of Management Information Systems*, 27, 3, 11-42.
48. Zaino, J. (2005) Letting the Process Go, *InformationWeek*, June 13 (Issue 1043), 45-48.