



# Strategic Alignment and Systems Control of Processes: The Case of JEA

BY JOHN B. MACARTHUR, PH.D.; MIKE J. BROST, P.E.;  
AND BRUCE DOUECK

**HOW A MUNICIPAL UTILITY IMPLEMENTED A PROCESS-BASED ORGANIZATIONAL  
STRUCTURE AND SUPPORTING COST MANAGEMENT SYSTEM THAT INCLUDES A  
PROCESS-BASED COSTING SYSTEM.**

**EXECUTIVE SUMMARY:** Since the early 1980s, many organizations have implemented information systems to manage activities—a major step forward from managing on a functional basis. The development of activity-based costing and, later, activity-based management systems facilitated this transition. More recently, the focus has shifted to managing activities within the context of processes and subprocesses. For example, process-based costing (PBC) systems have been developed specifically to support process management. If managers focus on improving individual activities rather than an entire set of activities within processes and subprocesses, suboptimization can occur.

This article describes how JEA, a municipal utility based in Jacksonville, Fla., implemented a process-based organizational structure and supporting cost management and other models, which include PBC. JEA's general strategic control approach is a paradigm that can be generalized and adapted to other types of organizations.

Since the early 1980s, many organizations have implemented information systems to help manage activities. The development of activity-based costing (ABC) and, later, activity-based management (ABM) systems facilitated this transition. Overall, it has been a major step forward—in contrast to managing on a functional, silo basis, using traditional management accounting information systems.

More recently, managers have shifted their focus to managing activities within processes and subprocesses. If they are focusing on improving individual activities

rather than the entire set of activities within processes and subprocesses, suboptimization can occur. Often, the output from one activity is the input to another within the same process or subprocess. A cost saving or improvement in one activity may cause problems and inefficiencies in downstream activities. For example, efforts to reduce the time to process paperwork in one activity may result in more errors in subsequent activities, reducing efficiency and productivity. Recently, James A. Brimson proposed that a “process performance statement” be added as a fourth financial statement, with a focus on the future, including target

outcomes for each process to complement the historical emphasis of the traditional income statement, balance sheet, and cash flow statement.<sup>1</sup>

Process-based management models include process value analysis and process reengineering. Cost management models that support process improvement efforts include recent developments in ABC/ABM models that have more of a process focus.<sup>2</sup> Interestingly, a process emphasis has been a common feature of German ABC systems since 1989.<sup>3</sup> Also, process-based costing (PBC) systems have been developed specifically to support process management.<sup>4</sup> PBC systems manage activities in the context of processes as the following quotation indicates:

*Process-based costing does not make ABC obsolete. Rather, process-based costing modifies it and provides an overall framework within which ABC fits.<sup>5</sup>*

In the following case study, we describe how a municipal utility implemented a process-based organizational structure and supporting cost management and other models, which include PBC.

#### **JEA, A MUNICIPAL UTILITY**

JEA is a municipal electric, water, and wastewater utility in Jacksonville, Fla.<sup>6</sup> The company has been remarkably successful financially while having electricity rates that are among the lowest in the United States.<sup>7</sup> In 2001, JEA was the eighth largest municipal electric utility in the nation in terms of number of customers.<sup>8</sup>

JEA's long-run vision is to be "the best service provider in the nation by 2007." Its intermediate goal was "to become the best utility service provider in the nation" by 2004—according to the American Customer Satisfaction Index (ACSI).<sup>9</sup> The official ACSI cumulative results for the third quarter of fiscal year 2004 place JEA solidly in second place among all major U.S. utility companies.

To help achieve its ambitious goals, in 2001 JEA implemented a lean, process-oriented organizational structure to replace its functional organization.<sup>10</sup> The ongoing implementation steps were:

- ◆ Key processes, subprocesses, and activities were mapped.

- ◆ Key performance indicators were defined.
- ◆ Performance targets were established for each performance indicator.
- ◆ Managers trained to become certified Six Sigma "Green Belts."
- ◆ Unit managers assumed responsibility for continuous improvement within their process segment.

Now the new organizational structure is more compressed, has fewer hierarchical levels, and aims to reduce the number of managers it needs by 20%. Displaced managers either elect to retire or are redeployed to other positions within JEA.

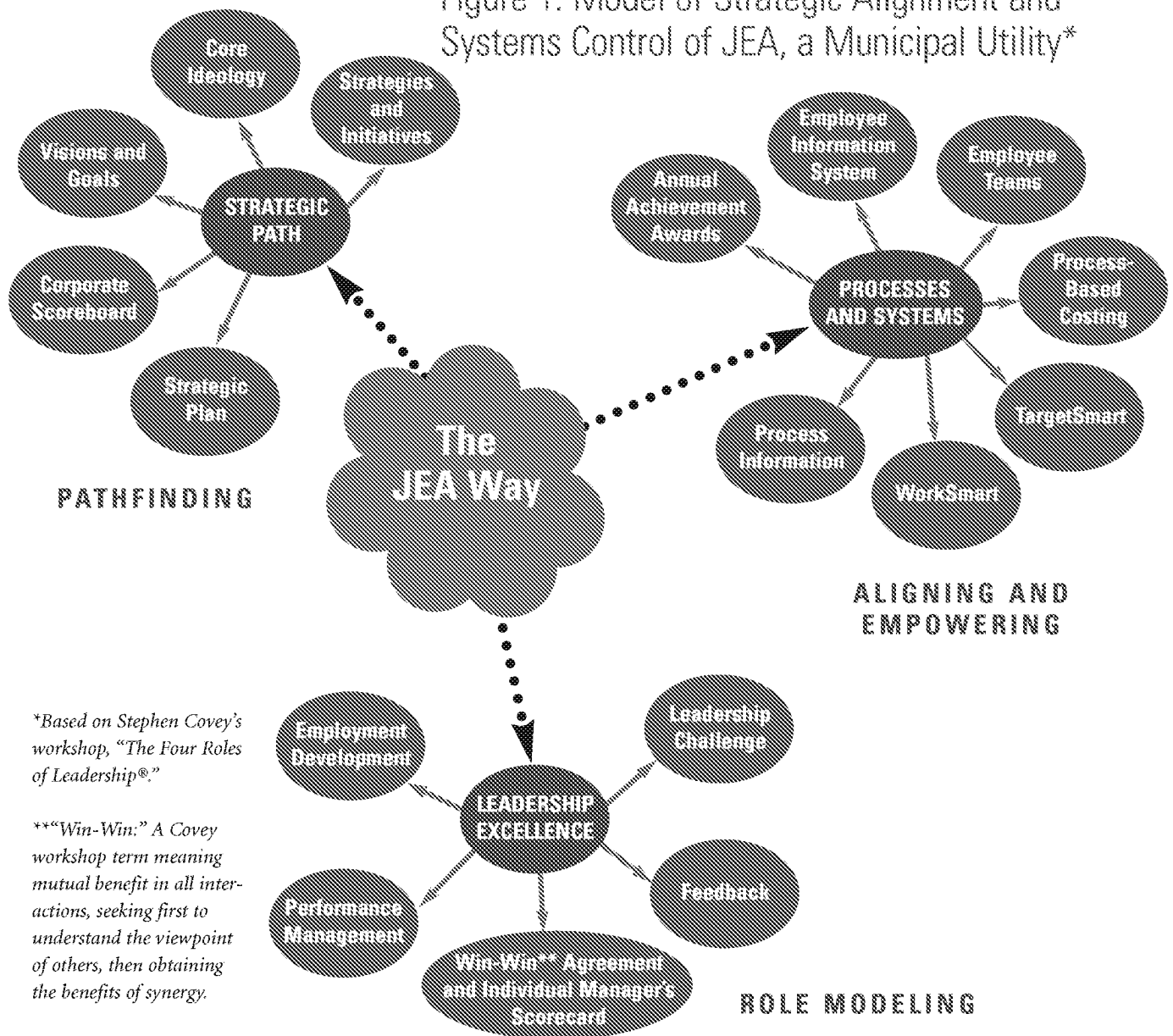
To further help achieve its goals, the company has developed "The JEA Way" of doing business, which is a strategic alignment and systems control model based on Stephen Covey's workshop, "The Four Roles of Leadership®." The four roles are: Pathfinding, Aligning, Empowering, and Modeling.<sup>11</sup> The JEA Way groups the four roles into three clusters: (1) Strategic Path (Pathfinding), (2) Processes and Systems (Aligning and Empowering), and (3) Leadership Excellence (Role Modeling), as depicted in Figure 1.

In the next two sections we discuss the JEA Way's strategic alignment and systems control of processes.

#### **STRATEGIC ALIGNMENT OF PROCESSES**

The three components of the JEA Way are aligned strategic systems, as shown in Figure 1. First, the Strategic Path systems establish the long-run vision, goals, and strategies, which form part of the company's strategic plan. Second, the Leadership Excellence systems promote management leadership that is committed to excellence in achieving JEA's goals and objectives. For example, Employee Development is a program that trains potential new managers to be future leaders and teaches new employees about the culture and tools needed to be successful. Third, the Processes and Systems programs promote continuous improvement in the performance of ongoing processes and systems in order to attain the operational short-run and long-run goals that support the Strategic Path goals and strategies. For example, process reengineering (called WorkSmart) and Six Sigma (called TargetSmart) programs have been used to improve the way work is performed in JEA's processes.

Figure 1: Model of Strategic Alignment and Systems Control of JEA, a Municipal Utility\*



\*Based on Stephen Covey's workshop, "The Four Roles of Leadership®."

\*\*"Win-Win:" A Covey workshop term meaning mutual benefit in all interactions, seeking first to understand the viewpoint of others, then obtaining the benefits of synergy.

The systems control mechanisms to monitor processes, which we discuss later, identify gaps in actual performance versus the planned performance levels. Gaps in JEA's strategic plan are handled by the Strategic Path system. Human performance gaps are addressed by the Leadership Excellence feedback systems. Performance gaps caused by design and/or organizational problems have been handled within Processes and Systems by the TargetSmart or WorkSmart systems. Performance gaps are usually caused by a combination of human, design, and organizational problems, which result in the involvement of more than one program to close the gap. For example, a performance gap may be the result of a

leadership issue and a process design problem. The Leadership Excellence and Processes and Systems that help prevent and close such performance gaps are presented next.

**Leadership Excellence**

JEA conducts comprehensive in-house training courses on the cultural, technical, personal, and organizational developmental required for different levels of management and different types of jobs. The courses help train employees and managers for the competencies and leadership skills required for their present and future positions in JEA. Topics covered in the courses include

quality, cost, cycle time, product, and customer issues. Course participants have reading assignments, and instructors use Microsoft PowerPoint slides and a variety of other pedagogical tools and techniques to present course material. To ensure that learning objectives have been achieved, course participants are tested on the material covered.

#### **Processes and Systems: TargetSmart (Six Sigma)**

Six Sigma is a continuous-improvement methodology developed and first used at Motorola in 1986.<sup>12</sup> It is a systematic set of tools and processes aimed at driving out defects from operating systems within organizations and reducing cycle-time, with the paramount aim of improved customer satisfaction. Six Sigma projects are used to significantly increase the profitability of organizations through the reduction of direct costs and improving quality, as defined by customers. In addition to Motorola, AlliedSignal, GE, and other major companies have successfully implemented Six Sigma programs to reduce the variability of processes and improve the profitability of their respective operations.

JEA is a pioneer among public/municipal utilities using a Six Sigma methodology called TargetSmart. TargetSmart is used along with process reengineering to help bridge gaps between customer expectations and actual performance. Operating at the Six Sigma level means a defect level of 3.4 parts per million, which may be considered as close to perfection as is currently feasible. It may be cost beneficial to operate at lower sigma levels to satisfy customer specifications that dictate acceptable levels of performance. For example, operating at the lower Five Sigma level means a higher defect rate of 233 parts per million and may be acceptable to customers for select processes.

In establishing TargetSmart criteria, it is important to identify quality as defined by internal and external customers. As a hypothetical example, two or fewer electricity outages a month may be defined by certain JEA customers as high-quality service, but three or more may be considered unacceptable. Additionally, electricity outages of five minutes or less may be considered acceptable quality, but JEA customers may define outages of more than five minutes as poor quality. JEA uses Pareto Charts and project evaluation matrices to

rank potential TargetSmart projects according to their impact on customers, employees, financial performance, and strategic initiatives in order to select TargetSmart projects that offer the biggest potential direct cost savings and quality benefits.

JEA management considers TargetSmart a methodology to obtain incremental continuous improvement of existing processes. TargetSmart projects involve mapping processes, validating internal and/or external customer requirements, and evaluating the success of TargetSmart in obtaining the desired process improvements. If TargetSmart projects fail to achieve cost and quality targets (e.g., reduced cycle time), it becomes necessary to switch to a more radical process reengineering approach that redesigns and overhauls processes to meet customer requirements, subject to cost-benefit considerations.

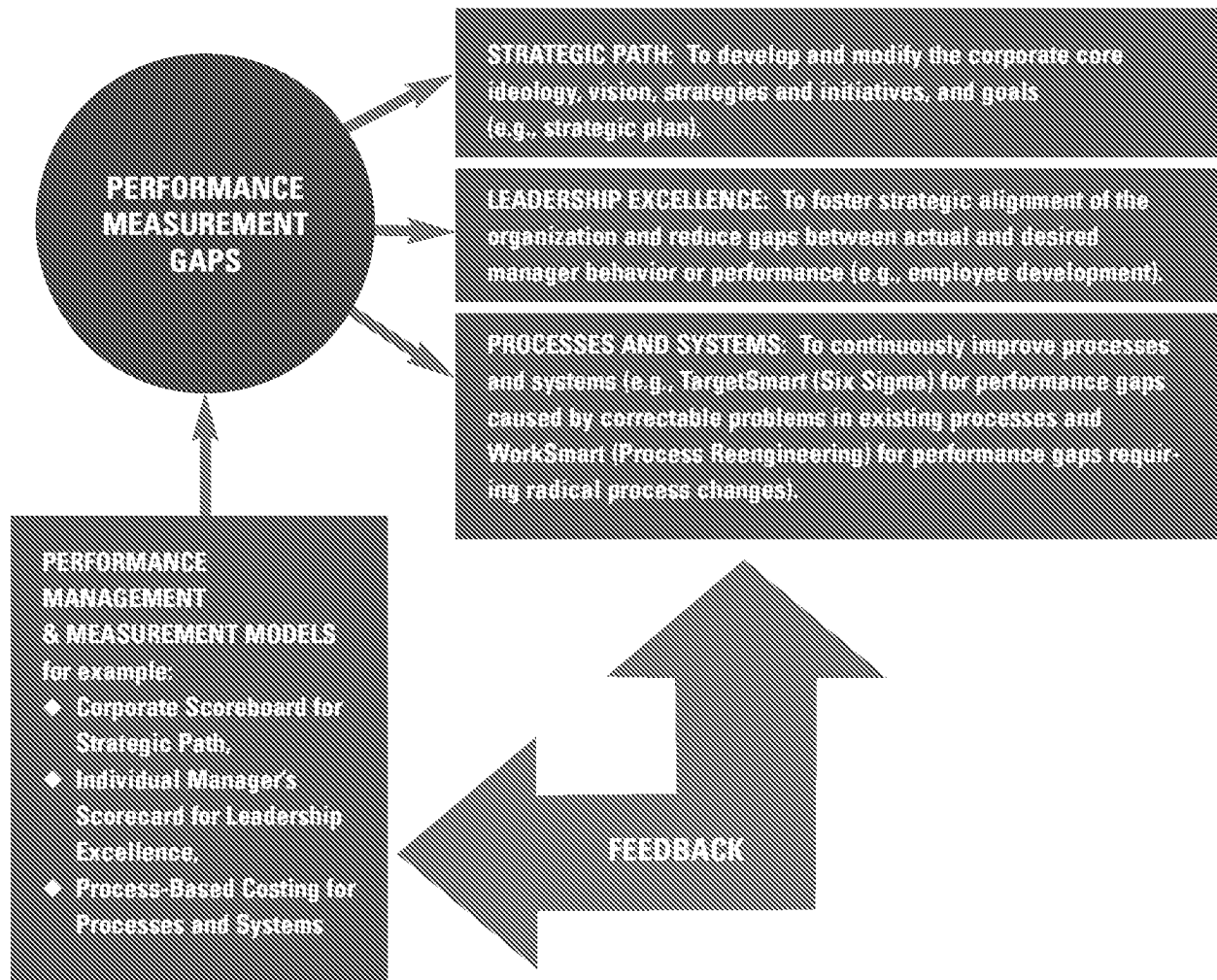
JEA management plans to utilize the TargetSmart approach to help pick capital projects for funding. This application of TargetSmart is currently in the development phase, but it will help to identify capital projects that contribute the most to improving the results of its Corporate Scoreboard (C.S.), JEA's version of the balanced scorecard.

#### **Processes and Systems: WorkSmart (Process Reengineering)**

WorkSmart has been used for strategic projects such as JEA's organizational merger with Jacksonville's water and sewer departments in 1996 and 1997. The merger necessitated process reengineering to integrate and standardize the processes, policies, and procedures of both departments in order to obtain economies of scale. JEA has tackled about a dozen WorkSmart reengineering projects that had changes too extensive to be handled by the TargetSmart Six Sigma methodology. WorkSmart evolved from the work of Michael Hammer.<sup>13</sup> JEA recently modified its process reengineering methodology to include a variety of TargetSmart tools, such as Design for Six Sigma.

Whether TargetSmart or process reengineering is used to address a performance gap or other need, in-house training for managers and employees is necessary to ensure the proper use of these process improvement tools. It is important that all changes are aligned with JEA's mission, goals, objectives, and strategies, which

Figure 2: The JEA Way Strategic Alignment and Systems Control Model



are embodied in the JEA Way. JEA management strives to ensure that all of JEA's activities are aligned with the organization's corporate strategy.

#### SYSTEMS CONTROL OF PROCESSES

Performance measurement models are needed to monitor progress toward attaining the system's goals and objectives. Gaps in performance can be addressed, as discussed in the previous section. The Strategic Alignment and Systems Control model used at JEA is depicted in Figure 2, and many of the major components are discussed and illustrated next.

Within the Strategic Path, the C.S. is used to monitor progress in achieving strategic objectives that are estab-

lished annually for key variables. Within Leadership Excellence, scoreboards are used to monitor each manager's performance. Within Processes and Systems, PBC is used to monitor the success of TargetSmart initiatives in particular. The various strategic control models are intertwined. For example, PBC supports TargetSmart, which in turn seeks to identify and improve the processes that have the greatest positive impact on the key variables measured in the corporate scoreboard.

#### Corporate Scoreboard

The corporate scoreboard is a strategic control model that monitors the four key areas of JEA's business: employees, customers, community, and financial/

productivity. It establishes stretch improvement targets that are difficult but attainable for each area. (Interestingly, a Canadian power utility company has used a balanced scorecard system since 1996.<sup>14</sup>)

From 1998-2001, JEA's C.S. consisted of four categories: employees, customers, financial, and productivity. For each category, JEA reported goals, targets, and achievements, as shown in Tables 1, 2, and 3. For example, in 1998-1999, injuries to JEA employees were limited to 69, which exceeded its ambitious workplace safety target of 89 OSHA recordable accidents by 20 (22.5%).<sup>15</sup> In the following fiscal year, 1999-2000, JEA improved, exceeding its target in two out of the four C.S. categories: employees and customers, as shown in Table 2. Notably, JEA's ambitious target for OSHA recordable accidents in 1999-2000 was 45 or fewer compared with its achievement of 44.<sup>16</sup>

**Continuous Improvement.** In 2001, JEA improved its C.S. by combining the financial and productivity categories and creating a new category called "community." Community reflected JEA's concern for the quality of life of the community it serves. For example, in August 2000, the Florida Urban Forestry Council gave JEA an Outstanding Business Award for its "Communi-Tree Grant Program," which provides trees to local community groups for planting in local areas. JEA's environmental efforts have resulted in other awards, including the Mimi and Lee Adam award in 1990 from the Jacksonville mayor's office. The C.S. improvements are illustrated in JEA's C.S. for 2001-2002, as shown in Table 3.

**Illustrative Achievements.** Examples of achievements in four of JEA's C.S. categories follow.<sup>17</sup>

*Employees.* To help improve workplace safety, JEA introduced many safety initiatives. For example, the company introduced a "Safety Seven Hotline" in January 1999, which is available all day, every day, for employees to report hazardous situations that may require immediate investigation and remedial action. To improve the work environment for employees, JEA also implemented an employee information system (EIS) on its intranet site in January 1999, which provides daily updated statistics on 21 key variables, such as customer satisfaction and call-center wait times. The 2001-2002 C.S. results in Table 3 show that performance has reached a plateau in a number of categories, including

the employee safety area. New initiatives are being implemented to gain further improvement. In 2002, for example, JEA began a behavior-based safety program in which employees are rewarded for safe behaviors. This is a major step in improving employee safety performance toward an injury-free culture at JEA.

*Customers.* To help improve residential customer reconnect satisfaction, JEA employed and trained extra customer-care specialists to reduce the time it takes to answer customer telephone calls. Also, TargetSmart techniques were used to reduce telephone wait time for callers. To improve competitive performance vis-à-vis five leading Southeast utilities, JEA opened two new water treatment plants and four new wells. Also, to better meet community and stakeholder needs, the utility undertook environmental projects such as "Ground-Works," which includes public school training programs and converting overhead electric utilities to underground electric utilities.

*Financial.* To help reduce JEA's debt ratio and total debt, the company deposited funds into two escrow accounts to discharge about \$152 million of various outstanding bonds.

*Productivity.* To help improve operating maintenance and productivity, 15 WorkSmart teams of more than 120 employees designed improved work methods for warehouse/inventory operations, reduced operating maintenance and inventory expenses, and improved productivity of JEA's vehicle fleet. Also, JEA set new internal records of electric generation reliability in the 1999 fiscal year, and the St. Johns River Power Park, a JEA plant, received a national award for plant management, operations, and maintenance excellence.

*Benchmarking.* JEA seeks to benchmark its operations against the "best in the class" of any organization. Benchmarking comparisons are an integral part of JEA's C.S. performance metrics. For example, in the C.S. customer category, JEA compares its customer satisfaction to that of five other leading utilities in the Southeast, with favorable results since 1999 when it began using this metric.<sup>18</sup> Also, in the C.S. productivity category, JEA performed among the top 10% of U.S. electricity generating units in "equivalent forced outage rates"—in other words, the frequency of unplanned power plant stoppages.<sup>19</sup>

Table 1: JEA's Corporate Scoreboard Results  
for Fiscal Year 1998-1999

CATEGORY	GOAL	TARGET	ACHIEVEMENT
<b>Employees</b>	Improve workplace safety.	Reduce OSHA recordable accidents to 89 or less.	69
	Improve employee work environment.	Improve the Employee Communications and Empowerment Survey Index by 2.5% above the previous performance level.	15.2% above the previous performance level.
<b>Customers</b>	Improve residential customer recontact satisfaction. Following customer contact with JEA, customers are re-contacted to obtain their level of satisfaction with their contact with a JEA employee.	Improvement in the residential recontact satisfaction index over the FY98 baseline of 77.09%, with a target of 77.29%.	76.55%
	Improve competitive performance as measured against leading utilities in the Southeast. Measures include residential electric and water/wastewater service, as well as commercial and industrial quality of service.	Achieve a score of 12 out of 18 possible competitive customer satisfaction points in direct competition with five other leading utilities for comparative satisfaction and loyalty ratings.	10
<b>Financial</b>	Reduce debt ratio.	Reduce Electric System Debt Ratio to 40%.	39.8%
<b>Productivity</b>	Improve operating and maintenance (O&M) productivity.	Improve the ratio of non-fuel O&M expenses to total revenues (less investment income) to 20%.	20.16%

Table 2: JEA's Corporate Scoreboard Results  
for Fiscal Year 1999-2000

CATEGORY	GOAL	TARGET	ACHIEVEMENT
<b>Employees</b>	Improve safety in the workplace.	Reduce OSHA recordable accidents to 45 or less.	44
	Improve employee work environment.	Improve the Employee Communications and Empowerment Survey Index by 2.5% above the previous performance level.	155.5 (Note: There was a change in the number of questions.)
<b>Customers</b>	Improve residential customer recontact satisfaction of 77.29%.	Improvement in the residential recontact satisfaction index over the FY98 baseline of 77.09%, with a target of 77.29%.	77.88%
	Improve competitive performance as measured against leading utilities in the Southeast. Measures include residential electric and water/wastewater service, as well as commercial and industrial quality of service.	Achieve a score of 13 out of 18 possible competitive customer satisfaction points in direct competition with five other leading utilities for comparative satisfaction and loyalty ratings.	12
<b>Financial</b>	Reduce debt ratio.	Reduce Electric System Debt Ratio to 45.6%.	54.3%
<b>Productivity</b>	Improve operating and maintenance productivity.	Improve the ratio of nonfuel O&M expenses to total revenues (less investment income) to 19.5%.	20.88%



Table 3: JEA's Corporate Scoreboard Results  
for Fiscal Year 2001-2002

CATEGORY	GOAL	TARGET	ACHIEVEMENT
<b>Employees (Safety)</b>	Improve workplace safety.	Achieve a Recordable Incident Rate (RIR) of 1.4 or less. (Approximately 33 OSHA recordables.)	2.23 RIR (with 54 OSHA recordables)
<b>Employees (Communication &amp; Empowerment)</b>	Improve employee work environment.	Improve the Communications and Empowerment Index by 2.5% above the standard error over the FY99/00 baseline by 9/30/02.	146.4 (Note: There was a change in th number of questions.)
<b>Employees (Opportunities &amp; Resources)</b>	Improve employee work environment.	Improve the Opportunities Resources Index by 2.5% above the FY99/00 baseline by 9/30/02.	44.2%
<b>Customers (Residential, Commercial, &amp; Industrial (C&amp;I) Competitive Performance)</b>	Improve competitive performance as measured against leading utilities in the Southeast. Measures include residential electric and water/wastewater service, as well as C&I electric quality of service.	Achieve a score of 15 out of 18 possible competitive customer satisfaction points in direct competition with five other leading utilities for comparative satisfaction and loyalty ratings as of 9/30/02.	13
<b>Financial/Productivity</b>	Improve organizational productivity.	Achieve a ratio of non-fuel O&M expenses to revenue (less investment income) to 17.3% or less by 9/30/02.	22.49%
<b>Community</b>	Improve JEA support of community.	To be developed.*	To be developed.*

\* Numerous community measures tracked at manager and director level.

### Individual Manager's Scoreboard

To operationalize the C.S. throughout JEA, individual manager's scoreboards and employee performance evaluations are used to monitor manager and employee performance. Performance evaluation factors include developmental, cultural, and technical and operational performance. The developmental area covers personal job factors such as communication behaviors, people skills and behaviors, self-development, safety, customer satisfaction, and innovation and creativity. Managers have a portion of their compensation linked to their scoreboard performance.

### Process-Based Costing (PBC)

The latest addition to JEA's strategic control model is PBC, which supports JEA's new process-oriented strategy.<sup>20</sup> PBC was adopted to help achieve major cost savings across JEA's processes and products. To accomplish this, PBC provides cost information on business activities to cost center managers to help them make good strategic and tactical decisions for TargetSmart initiatives, customer segments, and process management. For example, PBC information is useful for make-versus-buy, lease-versus-own, and pricing decisions.<sup>21</sup> PBC has a focus on current and future activities, and its records are maintained separately from the financial accounting system, which has a historical reporting emphasis. Like financial reports, regular PBC reports are distributed electronically each month to JEA managers. Also, ad hoc PBC reports are provided to managers as needed. Eventually, PBC information will be available online so managers can manipulate the data in real-time.

The focus of PBC on costing activities within the context of processes means that changes to resources, activities, and the way PBC models are monitored cannot be made independently without considering how such changes affect other parts of the process. When changes in one cost center affect activities and PBC models within other cost centers, the details and potential impact of the changes must be communicated to unit managers, inviting them to ask questions.

*TargetSmart and PBC.* A major focus of PBC is the identification and elimination of nonvalue-added activity costs from business processes in support of TargetSmart

initiatives. This complements the major foci of TargetSmart, which are to eliminate errors, reduce cycle time, and improve customer satisfaction within the same business processes.

TargetSmart and PBC have common elements.

These include the same five-step process to solve problems and a focus on:

- ◆ Activities,
- ◆ Business processes,
- ◆ Activity outputs, and
- ◆ Nonvalue-added activities.<sup>22</sup>

The PBC system provides operational management with the financial information needed to prioritize and support continuous improvement endeavors. For example, PBC performance reports compare planned and actual activity costs and identify cost savings from TargetSmart initiatives.<sup>23</sup>

*Top-down support.* As a major strategic initiative, PBC has strong top-down support from JEA's managing director/CEO. Such high-level support is generally considered essential if new major internal initiatives are going to be taken seriously throughout the organization and have a high probability of being successful.

To support JEA's current strategy, top management selected the following overall objectives for PBC models:

- ◆ Support TargetSmart,
- ◆ Support the assignment of costs to activities, and
- ◆ Support forecasting and target setting.

JEA's PBC model is dynamic, and its objectives will change as necessary to respond to strategy changes. Toward this end, all JEA managers are required to certify annually that their cost center's PBC model is up-to-date and accurately reflects current resource consumption. Also, JEA cost center managers are expected to input data to temporarily override the usual cost assignment for a month when an abnormal usage of resources occurred because of such things as stormy weather, rush work, and other unexpected events.<sup>24</sup>

*Implementation.* A management consulting organization aided JEA's development of its PBC system by conducting an introductory workshop, providing benchmark information, and giving other project management assistance.<sup>25</sup> A PBC design team of line and finance managers was established to oversee the original development, including conducting pilot studies and ongoing

maintenance of the PBC system. The design team is also responsible for preparing and updating a communication plan that ensures managers and directors are informed regularly about significant PBC developments and project successes in attaining PBC targets.

A PBC Core Team in Finance (PBCCTF), composed of the PBC manager and budget analysts who have received training in PBC systems, was responsible for implementing the PBC system in JEA's 160 cost centers and making entries into JEA's automated computerized information system. PBCCTF members organized a one-day PBC orientation workshop for department cost center managers and some of their subordinates. Subsequently, they helped each departmental manager identify the activities of their cost center, which is step one in the PBC implementation process. TargetSmart classifications are the basis for grouping the work of departments into PBC activities. Because of the process focus of JEA and PBC, extant "process development system charts" are used by each department to identify upstream and downstream activities in other departments that are internal suppliers and customers of their activities. PBC cost assignments are made from the internal suppliers' activities to the internal customers' activities.

Next, PBCCTF representatives conducted an area analysis workshop for each cost center where:

- ◆ Resource costs (e.g., salaries) and their cost drivers (e.g., numbers of full-time employees) are identified (step two),
- ◆ Resource costs are assigned to PBC activities using resource drivers (step three), and
- ◆ Output measures and activity drivers are identified (step four). For example, for the PBC activity "residential electrical hook-up," the output measure is the number of residential hook-ups performed, and the activity driver is the number of customer requests for hook-ups processed.

Subsequently, PBC activity costs are assigned to cost objects on an ongoing basis (step five). For example, the cost object for the "residential electric hook-up" activity is "electric residential."<sup>26</sup>

The 2002-2003 financial year was the baseline year for implementing PBC models in the major units of JEA. The baseline period for other units will be the

financial year when PBC models are implemented. During the baseline year, target cost reductions are determined for each activity.

*Complexity level.* JEA management recommended that the initial PBC models not be too complex, with detailed analysis kept to only one or two levels. For example, the JEA level-one, or parent, activity, "customer order management," can be subdivided into five level-two, or children, activities as follows:

- ◆ Residential electric hook-up,
- ◆ Residential water/sewer hook-up,
- ◆ Commercial electric hook-up,
- ◆ Commercial water/sewer hook-up, and
- ◆ Street lights.<sup>27</sup>

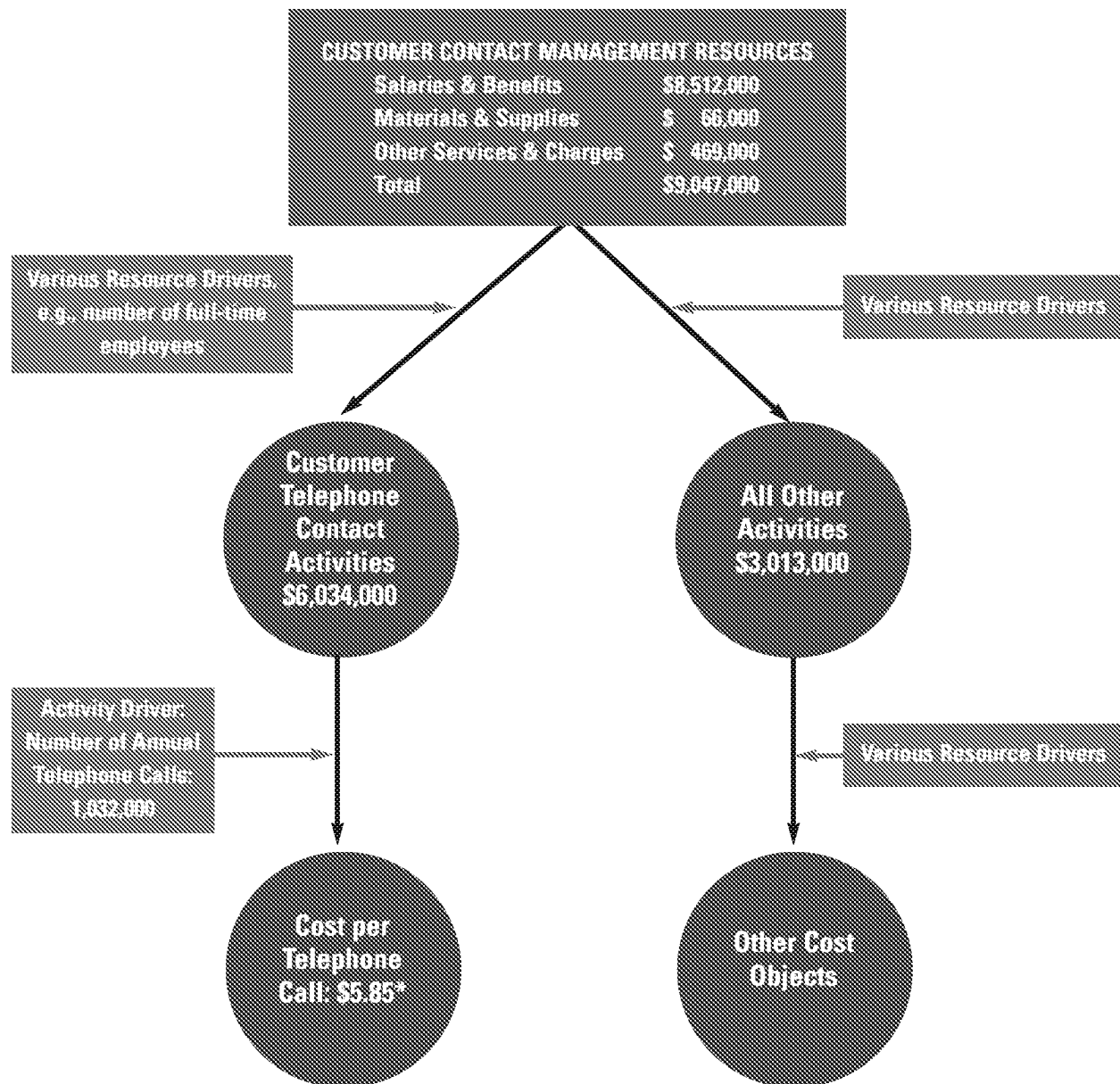
The JEA recommended approach is consistent with development of ABC models in other organizations. It is common for organizations to begin at a relatively simple level, with a limited number of activities and cost drivers, and gradually progress to more sophisticated and expensive ABC systems.<sup>28</sup>

At the individual cost center level, however, managers could adopt a PBC model with deeper levels of detail. For example, each of the five level-two activities could be subdivided into the geographical areas that JEA serves. The degree of disaggregation of activities is constrained by the information available to perform PBC analysis at the lower levels and by cost-benefit considerations.

A further example of the JEA PBC model in its simplest form is given in Figure 3.<sup>29</sup> The subprocess "customer contact management" (level-one activity) can be subdivided into "customer telephone contact" and several other level-two activities. Further disaggregation to lower-level activities again depends on information availability and the costs versus the benefits of deeper PBC analysis.

*Participatory approach.* The freedom given to managers to select the level of activity detail for their unit's PBC model is an example of JEA's participatory approach. It uses the expertise of cost center managers and their staff for specific activity-cost information that helps them manage their processes. Also, it helps to secure their acceptance or "buy-in" of the PBC system, as they are involved in the design of the specific model to be used in their own cost center.

Figure 3: JEA PBC Example—Customer Contact Management Subprocess



\*\$6,034,000/1,032,000 = \$5.85 per telephone call

Another example of the participatory approach adopted by JEA is the formal request in the PBC procedures for improvement suggestions and for feedback from users on the uses, accessibility, and understandability of PBC. This also illustrates JEA's continuous improvement philosophy. Feedback is sent to the PBC manager, who must acknowledge receipt of the suggestions within 48 hours. The PBCCTF review all feedback on a quarterly basis and plan, install, and announce adopted changes. The PBC manager notifies users who made suggestions that were not implemented.

### STRATEGIC ALLIANCES ACROSS THE INDUSTRY VALUE CHAIN

Strategic alliances across the value chain are another important strategic cost management mechanism for reducing costs and improving quality and customer service. JEA has helped to form and is a member of two such strategic alliances, The Energy Authority (TEA) and Coelectric Partners Inc.

TEA, formed in 1997, is "a municipal power marketing and risk management joint venture, headquartered in Jacksonville, Florida."<sup>30</sup> TEA helps to reduce the costs and risks of purchasing wholesale power for JEA and the other joint venture members.

JEA and three other significant public power utilities in Georgia and Nebraska are members of Coelectric Partners Inc., a Georgia nonprofit corporation formed in 2001. The corporation's purpose is to obtain cost savings and other benefits for its members in various parts of the energy supply chain, such as cost savings from combined training measures.

Finally, the recent economic and qualitative successes of JEA illustrate the value of a many faceted yet integrated strategic control model that dovetails with an organization's corporate strategy. JEA's overall strategic control approach is a paradigm that can be generalized and adapted to other types of business organizations. ■

*John B. MacArthur, FCCA, Ph.D., is the Kathryn and Richard Kip Professor of Accounting and Cost Management at the Coggin College of Business at the University of North Florida in Jacksonville. He can be reached at (904) 620-1689 or [macarth@unf.edu](mailto:macarth@unf.edu).*

*Mike J. Brost, P.E., is vice president organizational services at JEA in Jacksonville. He can be reached at (904) 665-6537 or [brosmi@jea.com](mailto:brosmi@jea.com).*

*Bruce Doueck is capital planning manager at JEA. He can be reached at (904) 665-6231 or [DoueNB@jea.com](mailto:DoueNB@jea.com).*

- 1 James A. Brimson, *The Handbook of Process-Based Accounting: Leveraging Processes to Predict Results*, American Institute of Certified Public Accountants, New York, N.Y., 2002.
- 2 For example, see Paul A. Dierks and Gary Cokins (Eds.), *The CAM-I Glossary of Activity-Based Management, Version 3.0*, CAM-I, Bedford, Texas, March 2000.
- 3 Bernd Gaiser, "International Perspectives: German Cost Management Systems," *Journal of Cost Management*, September/October 1997, pp. 38-41. The name given to German ABC systems, Prozesskostenrechnung, literally means "process costing."
- 4 For a process-based costing (PBC) conceptual model, see R. Lawson, "Beyond ABC: Process-Based Costing," *Journal of Cost Management*, Fall 1994, pp. 33-43; and for a practical example of PBC in a service organization, see R. Lawson, "Process-Based Costing at Community Health Plan," *Journal of Cost Management*, Spring 1996, pp. 31-43.
- 5 Lawson, 1994, p. 43.
- 6 JEA used to be an acronym for Jacksonville Electric Authority. Since 1996-97, this municipal utility has been responsible for electricity, water, and sewer for the City of Jacksonville, Fla., and surrounding areas, and JEA is its full title.
- 7 For example, JEA's residential customer rate was ranked ninth lowest out of 60 utilities across the country in a quarterly survey, July 2000. These rates include base rate, fuel adjustment charge, and applicable franchise fees per 1,000 KWH.
- 8 JEA, "Annual Disclosure Report for Fiscal Year Ended September 30, 2003," (<http://www.jea.com/about/pub/downloads/NRMSIR2003.pdf>).
- 9 *JEA Annual Report 2000* (<http://www.jea.com/about/pub/downloads/2000AnnualReport.pdf>): Established in 1994, the American Customer Satisfaction Index (ACSI) is a uniform and independent measure of household consumption experience. A powerful economic indicator, the ACSI tracks trends in customer satisfaction and provides valuable benchmarking insights of the consumer economy for companies, industry trade associations, and government agencies. The ACSI is produced through a partnership of the University of Michigan Business School, the American Society for Quality (ASQ), and the international consulting firm, CFI Group. More information can be found at <http://www.theacsi.org/overview.htm>.
- 10 M.R. Hightower and W.P. Bussels, "From the Chairman and Managing Director/CEO," *JEA Annual Report 2001*.
- 11 Stephen Covey, "The Four Roles of Leadership."
- 12 The Six Sigma Academy (<http://www.6-sigma.com>).
- 13 Michael Hammer and Steven A. Stanton, *The Reengineering Revolution*, HarperBusiness, New York, N.Y., 1994.
- 14 Paul R. Niven, "Cascading the Balanced Scorecard: A Case Study on Nova Scotia Power, Inc.," *Journal of Strategic Performance Measurement*, April/May 1999, pp. 5-12.
- 15 "How Do You Measure JEA's Success? Success Stories," *JEA 1999 Annual Report*, p. 4.
- 16 *JEA 2000 Annual Report*, p. 15.
- 17 "How Do You Measure JEA's Success? Success Stories," *JEA*



1999 Annual Report, pp. 4-19.

- 18 *Ibid.*, p. 11.
- 19 *Ibid.*, p. 18.
- 20 The authors are grateful to Raymond E. Tull, a process-based costing specialist at JEA, for his extensive assistance in providing information for the PBC section of the article.
- 21 MSI (Management Systems International), "JEA TargetSmart Process-Based Costing (PBC) Introductory Workshop," 2002, p. 34.
- 22 MSI's five-step process is: (1) group work into logical "PBC activities," (2) identify resource costs and cost drivers, (3) assign resource costs to PBC activities, (4) identify output measures and activity drivers, and (5) assign PBC activities to cost-objects."
- 23 MSI, p. 30.
- 24 From JEI's "Managing Director/CEO's Management Directive and Process-Based Costing Procedures," October 1, 2002.
- 25 MSI, "JEA TargetSmart Process-Based Costing (PBC) Introductory Workshop."
- 26 The step-four and step-five "residual electric hook-up" examples are based on MSI, p. 74.
- 27 MSI, p. 74.
- 28 John B. MacArthur, "Activity-Based Costing: How Many Cost Drivers Do You Want?" *Journal of Cost Management*, Fall 1992, pp. 37-41.
- 29 Based on an example given in an internal JEA document, "Process-Based Costing (PBC): A Cost Management Tool."
- 30 The quotation and other information in this section were taken from the *JEA Annual Report 2001*.