Perceptions of performance

by RICHARD J. CIESLOWSKI
Aetna Life and Casualty
Hartford, Connecticut

INTRODUCTION

Most businesses view the data processing staff as a centralized resource, providing a specialized service to all segments of an organization. Centralization has occurred in response to the intrinsic cost and expertise benefits available through a concentration on this discipline. The inevitable separation from the client organization results in the establishment of a consultant/client relationship, e.g., the personnel responsible to support and accomplish the organization’s operational objectives reside in a separately managed and controlled area. This presents a significant problem—one which often results in the operational area being accountable for an objective, while the data processor holds the key to its accomplishment. The data processor, who is charged with maintaining a high level of technical data processing competence along with developing an understanding of the clients objectives must clearly understand his position. On the other hand, the client, who has ultimate accountability for results, often has little, if any, data processing knowledge or ability to deal effectively with the data processor.

Given this framework, how do data processor and client personnel communicate effectively? Can the data processing systems developed perform as required? Can specific performance measurement criteria be developed?

A plan must be developed to help both the data processor and client address these questions. The basic principles of the plan must be simple and capable of application across a wide range of client requirements.

STANDARDS OF PERFORMANCE TECHNIQUE

Given a corporation’s major investment in data processing systems and resources, an effective process to ensure required human intervention can consist of the following steps:

- Establish “Standards of Performance” for each data processing system
- Measure the system’s performance as it compares with each standard each month.
- Recognize and reward the performance contributions of both data processor and client personnel.

In labor-intensive corporations, effective expense control programs must concentrate on salary costs and, in turn, on the number of personnel required in a support role. This is the critical controllable expense.

I have found that where “Standards of Performance” are instituted, people are motivated to produce more than the results desired. The data processor and client begin to communicate effectively. And why not? For the first time they have a common base—a commonly understood and held set of measurement criteria.

ILLUSTRATIONS

A case in point: One of the larger data processing systems I have personally been associated with was an employee human resource data bank which supported both Personnel and Payroll functions of one of the largest multiple-line insurance companies in the United States. The system accommodates the personnel/payroll records of an active staff of over 30,000 employees throughout the United States, Canada, and Puerto Rico.

In the course of a year, the system manipulates, calculates and processes in excess of 1.2 million transactions. Associated with this is the annual production and distribution of over 350,000 personnel reports and 860,000 paychecks.

An integral part of the system was a client staff of 39 employees who were charged with the specific responsibility of inputting, pre-editing, coding, balancing, researching, analyzing, distributing and controlling this employee data. A staff of 19 data processors were required to support the technical aspects of the system. (Exhibit I illustrates the relationships.) The “system” in a real sense consists not only of the data processing equipment, but the manual support functions that people must perform.

Two years after installation, the system was perceived to be performing unfavorably. The data processors could not consistently satisfy the Payroll and Personnel client’s “needs.” Work was backlogged. Flexibility to handle new demands was limited. Processing costs were high—service levels, poor. Problems of this nature continued in spite of a 33 percent addition to staff over a two year period. The problem diagnosed was a lack of advanced data processing technology.

At this point, a Project Team, composed of data process-

From the collection of the Computer History Museum (www.computerhistory.org)
ing and client personnel, was commissioned to investigate the feasibility of installing a more sophisticated technology. The first step taken by the team was to develop a set of objective criteria, against which system performance could be measured. These were termed "Standards of Performance." Using them as a basis, the existing technology was evaluated. To everyone's surprise, the existing system met the desired performance levels. In short, while the perception of poor performance existed, when evaluated against specific, desired criteria, we were able to demonstrate that the system was performing satisfactorily.

Unfortunately, as is often the case, it's the perceptions that people have that counts. Our real problem therefore, was one of education—to correct an erroneous judgment. The culprit was identified as a real lack of understanding of system requirements and capabilities from both the data processor and client perspectives. The data processor was expending a large proportion of effort on activities that were not critical to the client personnel's operations. In turn, the clients were not communicating their essential needs to the data processor. To further compound the problem, in the final analysis, the Human Resource System was in fact adequately servicing the end users and was more than meeting their expectations. In the course of the project team's interview process all end users contacted were in agreement on this point. In spite of a constantly increasing input volume the system continued to produce secure, controlled, timely, and accurate output.

The Project Team recommended that an "Operational Improvement" was warranted rather than installing a new data processing technology. That is, all manual input handling activities be combined into a single unit, with efficient workflow and procedures. Work measurement controls were installed to insure high productivity levels. In addition, the team recommended maintaining a strict adherence to the Human Resource System's "Standards of Performance."

The recommendations were accepted by management and vigorously implemented. Immediate cost avoidance stemming from cancellation of the projected data processing developmental effort was $200,000. More importantly, however, system performance was perceived to be and was in fact meeting specific expectations!

A longer term benefit was shown when two years after performance standards were implemented, a 50 percent reduction in data processor and a 10 percent reduction in client resources were achieved as a direct result of improved communications and working relationships. Clearly, the catalyst was an agreed upon set of performance standards. (Exhibit II illustrates the results.) I don't pretend to suggest that all data processing problems are the result of erroneous perceptions or that they can be readily solved. Another case in point—performance standards were developed which, when applied, soon highlighted the fact that results were less than desired. An in depth probe revealed:

- Standards were ignored. While performance criteria were sound, they were ignored or inconsistently applied.
- Management placed little emphasis on monitoring actual results. This was visible to the employees since normal supervisor recordkeeping was delegated downward.
- Results were not reviewed between the data processor and client personnel. No ongoing constructive dialogue existed.

When the results of the review were presented to management they were accepted and constructively addressed. Within three months performance had returned to satisfactory levels. Again this was accomplished without the need to launch a new data processing system's development effort.

PERFORMANCE MEASUREMENT BENEFITS

When "Standards of Performance" are installed in an area, their impact while subtle, is dramatic in terms of results. For the first time the data processor and client have the same reliable and objective criteria on which to evaluate their collective performance. Usually some disturbing facts surface:

- Standards were ignored. While performance criteria were sound, they were ignored or inconsistently applied.
- Management placed little emphasis on monitoring actual results. This was visible to the employees since normal supervisor recordkeeping was delegated downward.
- Results were not reviewed between the data processor and client personnel. No ongoing constructive dialogue existed.
The data processing supervisor is not normally allocating his personnel to the critical client tasks. Too much attention is focused on mechanical efficiency.

Advancements in technology are not usually an answer to performance problems.

The client realizes he has not effectively utilized his available data processing resource. This realization can be a determining factor in greatly extending the life span of an existing data processing system, while at the same time realizing an attendant increase in performance. The cost avoidance, associated with not developing replacement systems is almost always substantial.

Once the standards are in place, communication between client and data processor and repetitive performance feedback is assured. This dialogue is an essential product of the "Standards of Performance" technique. It is the key to developing a balanced, factual perspective to data processing evaluation.

Positive results are visible in terms of reduced overtime and work backlogs. When standards are used, effective client/data processor communications are established. There is almost always a significant reduction in data processor resources required. Individual and group performance can be judged based on objective measurable results. Managers are in a better position to recognize and reward performance (or lack thereof). The net impact is a reduction in cost for salary expense, while, at the same time realizing an improvement in system performance.

STANDARDS DEVELOPMENT APPROACH

The approach employed to arrive at a data processing system's "Standards of Performance" is based on applying the management principles taught in the Louis A. Allen Project Seminar (Management Planning and Control) to the data processing environment.

"-ESTABLISH THE KEY OBJECTIVE: Identify the key data processing environment objective.
-ESTABLISH CRITICAL OBJECTIVES: Statements of the most important (continuing) results which must be accomplished if the key objective is to be realized.
-DEVELOP STANDARDS: Standards developed for each critical objective establish the criteria for effective performance."

The crucial management ingredient underlying this approach is the need to reach understanding and agreement between data processor and client.

STANDARDS DEVELOPMENT ILLUSTRATION

"Standards of Performance" for a hypothetical career management system could be constructed as follows:

KEY OBJECTIVE

To provide a reporting framework which supports the development, installation, and maintenance of personnel career management programs within the corporation. Further, to be responsive to report users' status and information needs.

CRITICAL OBJECTIVE 1

To provide calculation and report development flexibility so that personnel career management reports can be tailored to report user needs on a timely, economical basis.

STANDARDS

- To develop new reports in not more than 34 elapsed days.
- To modify existing reports in not more than 22 elapsed days.
- To enable client report generation in not more than 10 elapsed days.
- To set-up a new employee "On File" in not more than three elapsed days.
- To revise input forms in not more than 11 elapsed days.

Report development performance measures are intended to eliminate the inefficient usage of reports. Emphasis is placed on delivering exception reports and summary level reports rapidly. Flexibility must be developed so that report users do not feel a need to request voluminous detailed reports. This need is normally generated in reaction to an unresponsive or a costly developmental process.

Specific measurement criteria can be visualized in terms of a two dimensional matrix. (Exhibit III illustrates sample relationships). Procedurally, this matrix can be developed in the following three steps:

STEP 1—REPORT REQUIREMENTS are analyzed in terms of critical client needs. Report categories must be clearly defined and capable of being measured. Additionally, the data processor and client must be in complete agreement with the categories selected.

STEP 2—FUNCTIONS that must be performed, to insure error-free reports, are documented for all participants. Typically this will include report recipients in addition to the data processor and client. It is usually found that lines of responsibility are not clearly defined, which causes inefficiencies and duplication of effort.

STEP 3—ELAPSED TIMES must be assigned for each REPORT REQUIREMENT and will reflect past performance and future requirements. Times must be reasonable, attainable and should reflect a common, understood, and agreed to goal.

The end result of setting report development measurement criteria will be a common understanding of the report development process for both the client and data processor, along with supporting a framework for client communications with report requestors. The client can now pursue, on
## REPORT REQUIREMENTS

<table>
<thead>
<tr>
<th>Function</th>
<th>Develop New Reports</th>
<th>Modify Existing Reports</th>
<th>Client Report Generation</th>
<th>New Employee Set-Up</th>
<th>Revision of Input Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Report User Contact</td>
<td>1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalize Specifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report User &amp; Client</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Finalize Specifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client &amp; Data Processor</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis &amp; Costing Client</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; Data Processor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit Test Data Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Client)</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit Testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify Results (Client)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report Acceptance (Data Processor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>34</strong></td>
<td><strong>22</strong></td>
<td><strong>10</strong></td>
<td><strong>3</strong></td>
<td><strong>11</strong></td>
</tr>
</tbody>
</table>

* All time estimates are in terms of elapsed days.

Exhibit III—Personnel career management report matrix

On a factual basis, report delivery dates and can advise on the risks involved in attempting to unreasonably accelerate delivery dates.

### CRITICAL OBJECTIVE 2
Complete data processing production runs accurately and on schedule.

### STANDARDS
- 95 percent of all production runs will be completed within five (5) working days from receipt of the latest input item or input cut off date. This will apply unless other specific schedules are established.
- Machine resources will not exceed $5,000 monthly.

These measurement criteria are intended to be applied after the initial report development process is completed. The measurements ensure that recurring reports are delivered on a timely basis—it makes no sense to develop a report in a rapid and cost effective manner and then not monitor the recurring delivery process.

### CRITICAL OBJECTIVE 3
Implement minor report changes (1-10 days) on a timely basis.

### STANDARDS
- Resolve 98 percent of priority “A” changes prior to the next update (unless other arrangements agreeable to client and data processor have been made).
- All changes will be prioritized through the combined efforts of client and data processor personnel. Adding changes after the monthly schedule is established will result in a re-prioritization of existing planned work. Monthly planning of this activity should result in 95 percent of scheduled changes being completed without change.
- Implement 95 percent of all priority “B” (Balancing...
problems, report format/content changes) changes and 90 percent of all priority "C" (noncritical) changes on a monthly basis as reflected on the agreed-upon monthly maintenance schedule.

It must be noted that for proper application of these standards the prioritization process must be agreed to and understood by both client and data processor. The priority process is negotiable, however typical priority definitions are as follows:

A. Essential to next production processing cycle.
B. Desirable change—but not essential to next cycle process.
C. Changes to improve system performance, control, input and report processing.

Once the reports are developed and the ongoing data processing system is installed, requirements for system change occur. The origin of change is complex and can be generated from report user, client, or data processor personnel. However generated, change requirements must be controlled in a manner that identifies the most critical requirements. The intent is to meet maintenance measurement criteria while minimizing client and data processor staffing needs.

DEVELOPMENT TIMING

Defining a system’s standard of performance benefits both the client and the data processor. Ideally these performance criteria should be established early in a data processing system’s developmental process. The standards ensure that the client fully communicates critical needs. Since the standards are normally given in terms of response times (elapsed days) to perform an activity, the data processor has the necessary information to answer difficult system design questions—while fulfilling customer requirements with a minimum investment of data processor resources.

The standards of performance can also be developed for systems already installed. Typically maintenance activities can generate an unacceptable level of resource commitment in response to undefined but assumed objectives. Again, the standards can document the clients critical needs and can serve as a vehicle to evaluate an existing system’s performance. Closely monitored, it can also indicate a need to upgrade or replace the existing system.

INGREDIENTS FOR SUCCESS

The following four elements are necessary to ensure the success of the “Standards of Performance” technique.

STEP 1—ESTABLISH STANDARDS OF PERFORMANCE: The critical activity is to first establish the standards. Without sound standards the technique will fail. These performance standards cannot normally be established by methods such as time ladder studies, random sampling, stopwatch techniques, or modal time analysis. In other words the type of standards we are dealing with are not translatable to engineered time standards; reliance is placed on a combination of historical trends and consensus agreement.

STEP 2—PURSUE DATA PROCESSOR AND CLIENT UNDERSTANDING AND AGREEMENT: Having developed the standards, we must now set agreed to elapsed times and arrive at a complete understanding of requirements in both data processor and client areas. This must be done at the highest management levels in both areas. Again, without complete understanding and agreement, the chances of success are reduced.

STEP 3—REGULARLY MONITOR THE PERFORMANCE CRITERIA: The performance results must be discussed and acted upon on a monthly basis. This dialogue is yet another ingredient in ensuring the success of the technique since most standards cannot be as precise as an engineered time standard. A continuing reevaluation is the method used to test the standards as initially established and to answer such questions as: ARE RESULTS MEETING STANDARDS? IF NOT, WHY NOT?

STEP 4—REFINE STANDARDS WHEN NECESSARY: Given the imprecise nature of the standards, we must be willing to reevaluate them. Many external factors, such as client reorganizations or end user requirement changes can render some standards obsolete. Without continuous evaluation and updating all gains initially made can be lost.

CONCLUSION

No data processing effort should be attempted without first establishing “Standards of Performance.” Differing client requirements and objectives may require a unique set of performance criteria, however, there is no doubt that measurement criteria are mandatory.

The challenge to improve is a shared responsibility. Here is a new technique which, if properly applied, will result in high “system productivity” and the achievement of clearly defined levels of performance with communications which effectively link all parties of “The System.” Remember “The System” consists of automatic data processing equipment plus the personnel that make it go and Perceptions. While it is important to understand and control the people/machine relationship, it is equally as important that client and data processor share a common perception of performance.

REFERENCES
