Managing a development group in a manufacturing company carries with it the joys and challenges of interesting exercises such as job shop scheduling, production control, MRP, and capacity planning and, therefore, may offer one of the most rewarding environments in which to work. However, when budget time comes around, the manufacturing systems manager may become rather envious of the managers of financial or public sector organizations where the paper produced is the primary product of the business. In manufacturing, the systems group is itself a service organization and does not directly produce the widgets which keep the company alive. Consequently, the systems manager in manufacturing must justify his existence.

Since the exigencies of a knowledge-responsive manufacturing company dictate that every investment opportunity be quantified in hard numbers which track trends, evaluate impacts, and produce graphs which describe the win or loss of the investment, the systems manager had better be prepared to quantify and track quantitatively the output of his organization.

Fortunately, most systems departments are surrounded by figures and numbers if they simply recognize them and then summarize and extract them from their analog or distributed form. Since most businesses have a natural curiosity about what their computer gurus are actually producing anyway, the graphic demonstration of systems output can be an enlightening and rewarding exercise.

In the author's organization, the necessary data was distributed among a number of different computerized systems:

1. Job Accounting System--This system collects the summary hours charged on each of the projects initiated by an information service request.

2. Project Control System--This system is the repository of backlog requests which are waiting to be worked.

3. Planning-Budgeting System--This system contains information of budgets and expenses each year for each department.

4. Department Activity Table--This file ties each of the departments into a hierarchical organization chart.

5. Personnel Master File--This system contains the descriptive statistics on the staff.

6. Librarian Master File--This data set is the central repository of all programs, maps, and documentation generated by the systems staff.

7. Manually Collected Data--Inevitably, some facts like computer language experience, project plans, etc. will come from personal interviews.

Most organizations faced with the task of consolidating this data would be faced with the prospect of multiple report writers, data extraction utilities, COBOL programs, and finally the crowning touch of plugging all the data into a graphics package such as Tell-a-Graf, PLOT 10, etc. However, SAS is a tool which provides all of these capabilities in a single, integrated package. With its data extraction capability, any required information can be taken, in almost any format, from the required files. The merging and matching capability of SAS also enables one to bring the required collage of data together from the various component files. Consequently, SAS frees most organizations from the drudgery of COBOL utility kluges and reduces the problem to one of analysis and creativity rather than one of programming.

Productivity

True productivity in a development organization is a function of additional cost savings to the company or improved manufacturing productivity as a function of dollars spent on information systems. Attaining this information would require that each installed system be audited to determine what benefit had been achieved by installing the system. Since systems audit was one of the many luxuries dropped by the company involved in this case, no such information was available.

The next best construct appeared to be the unpopular "lines generated per man per month". The information for this study resided in two places:

1. The planning-budgeting data base containing average headcount per year.

2. The Librarian master file containing the programs written each year and the lines of code in each program.
Employing SAS, information was extracted from each, the two factors were divided by one another and the familiar chart appearing in figure one was achieved. This curve conveniently placed department productivity at five times the industry standard.

As interesting as lines of code are to computer types, they really carry very little significance to users in terms of what service was actually received. In fact, a job which requires 200 hours to service may achieve less net appreciation from a user's standpoint than one which takes only seven hours. Consequently, a measure which may have far more significance to a user is simply the number of his service requests completed as a function of time. For this interesting piece of information, only the project control file was required which contained the historical date on which each request was completed. By summarizing completions per month, the results appearing in figure two were obtained. This graph provides some vague analog of the overall trend of the service level being experienced.

More Money

The previous two measures are fine for indicating that a department is not headed on a course of decadent decline, but they do very little to provide fuel for budget justification when the percent increase is consistently outpacing inflation. Once the audience has been impressed with the strides being taken in the traditional area of productivity, attention may revert to the less popular subject of activity backlog.

To achieve a measure of backlog, the project control system which contains all of the requests processed through the department is again consulted. A simple tally of requests in the queue and estimated hours per request yield the results appearing in figures three and four.
This alarming trend in backlog must be quickly mitigated by a discussion of the extent to which companies are increasingly understanding the productivity benefits to be achieved through automation and are therefore turning to the systems department to further capitalize on those benefits. Unfortunately, few systems departments will ever be able to keep pace with the demand for services and consequently are arming themselves with "information centers" providing an array of report writers, Basic consulting, "Visicalc", "Plancode", "Tell-a-Graf", etc. to attempt to meet the information explosion at the user's level. Unfortunately, such a center was again felt to be an unnecessary extravagance in this company so the traditional "backlog explosion" continues.

The backlog is an ominous sign to the functional manager who himself may be contributing very little to the phenomenon; therefore, a subsequent question frequently arises, "Who are the chief contributors to this trend?"

To answer this question, the department number in the project control file must be cross-referenced to the department activity code table to give the department some meaningful name and place in the organization. This simple procedure results in the graph appearing in figure five which delineates the functional area contributing most to the backlog explosion. It comes as no surprise to most people that the financial organization feels they have the most to gain from systems support. What Money

Once the case has been made that some additional funding may be required to keep the backlog from becoming totally unmanageable, the justification discussion may pursue some positive cost reduction results. A valuable point which may contribute to the credibility of the manager presenting the unpopular position (assuming he has a functional area other than systems) would be to adjust his dollars required by inflation and include a functional area in which he has made some reductions. This data (coming from the planning-budgeting data base) may produce the results appearing in figures six and seven which show very little actual increase in budget considering the growth of the company and expansion of service provided and further describe a comforting trend in total headcount.
Another breakdown in this data appearing in figure eight emphasizes the true culprit of the budget to be people costs far in excess of the computer and software costs of the organization.

If the manager has carefully implemented the vestiges of a charge-back system (in this case, the combination of computer job accounting data and the department activity table) he may be able to further elucidate the prime beneficiaries of the business services effort as shown in figure nine. Here, individual activities are quickly identified as the recipients of service.
who Lives Here

Finally, the manager's presentation may cover the topic of the fine human resource being cultivated in the organization. By combining information from the personnel file and manually collected data from the department, descriptive statistics on education, years computer experience, and language breadth may be presented (figures ten through twelve) to leave the audience with the impression that at least a viable talent base is being established for all of the money being spent.

Just Answer the Challenge

Admittedly, this presentation of charts and graphs is not being presented as a panacea for the service organization's annual battle to justify its existence. However, this presentation does capitalize on descriptive, service-indicative, and quantitative information which may enhance an image of hard nosed, business-oriented, knowledge-responsive management in an area which has more traditionally been known for its specialized vocabulary, rampant inflation, and intangible benefits.

The manager of a "service organization" in a company walks a fine line on the tight-rope of the corporate political environment. He is not responsible for "widgets out the door" so his image and posture of friendly helpfulness, cooperation, understanding and support are extremely important. However, lest he be regarded as merely the warm, friendly luxury of the computer age, he must be ready to present his image in quantifiable goals and objectives which his peers may understand, respect, and use to track his progress.

The measures used to achieve this objective need not please the classical purist of systems productivity; their purpose is merely to support a respectable image per the exigencies of the environment.