ALTERNATIVE APPROACHES — INCREASE PRODUCTION

# 329 - 67

AUTHOR: M. STEINER

COMMUNITY SYSTEMS FOUNDATION
Mr. Charles Skinner  
Administrator  
Foote Memorial Hospital  
205 North East Avenue  
Jackson, Michigan  

Dear Mr. Skinner:  

We have just completed an analysis of your business office functions to investigate the need for additional productivity particularly in the accounts receivable area.  

We would like to express our appreciation for the cooperation received during our analysis and in particular, to Mr. Hamilton who generously provided both his time and assistance to this analysis.  

Should questions arise as a result of our analysis, we would welcome the opportunity to discuss them with you.  

Respectfully,  

Mathew W. Steiner  
Associate Director  

MWS: sf
Introduction

This report is directed towards evaluating the need and effect of Foote Hospital utilizing data processing for business office applications. The timeliness of this report is significant for the following reason. The present number of accounts in the accounts receivable file is growing at a rate which is faster than current personnel can keep up with. One method of reducing this backlog is to add additional personnel which will be utilized for this function. Another method is to increase the productivity of present personnel through automation.

Background

A major consideration in evaluating what type of EDP Foote Hospital should consider was the following: the system should generally be within the capabilities of present personnel and the systems presently utilized (e.g. - ledger card). Thus, a minimum of retraining or additional personnel of different skill levels would not be required.

Prior to determining equipment recommendations, we reviewed with hospitals presently utilizing electronic data processing similar to that under consideration. This review was in the form of personal visits and discussions with data processing managers via telephone. Much insight was gained during these discussions and certain points should be reiterated. All of the installations were not performing to the capabilities or objectives originally imposed upon them. A majority of the installations chose to initiate their data processing with payroll as the first application. The rationale for doing this concentrated on the fact that this application was the easiest to perform and therefore would allow the hospitals data processing personnel an excellent opportunity to learn. This is a valid statement, however certain difficulties seem to be inherent for those hospitals which followed this course; once the initial application is functioning, considerable time seems to be devoted in refining and upgrading the initial application, thus the time table for other applications seems to slip. The obvious result is that the institution is incurring the full cost of the system for a period of time longer than anticipated, while the systems performance is directed at a problem which is not of the highest priority.

1.
Future Considerations

The concept of utilizing a shared computer system is a consideration which many hospitals currently are exploring. Certainly the potential of shared systems seems to suggest economic and data information exchange advantages which presently is beyond that of individual hospital. It would appear that those elements effect Foote Hospital in the following manner; Commonwealth Associates is presently advocating a central hospital system to serve Jackson and the surrounding area. The intention of such a system (as interpreted by CSF) is to extend applications beyond business office into patient information systems. Blue Cross has also expressed an interest in providing data processing assistance to a number of hospitals. At this time the exact nature of this assistance remains to be clarified among the individual institutions and Blue Cross. Both of these organizations, Commonwealth and Blue Cross do not have definite programs established which would provide at this point in time an alternative to our recommendations. A need will definitely exist in the future to evaluate these approaches. It is our judgement that the approach recommended will involve a minimum of invested capital should other alternatives prove attractive in the future.

Conclusion

The present workload of the business office is increasing. The increase is most noticeable in the accounts receivable area. In order to effectively reduce the outstanding accounts either additional personnel or additional mechanization will be required.

Recommendations

To reduce the present workload and provide a system which will benefit growth potential and improve management reporting, we recommend that Foote Hospital utilize a NCR 500 system to process certain business office functions. We suggest that the applications to be processed proceed in the following sequence:

1) accounts receivable, 2) patient billing – in and out-patient
3) payroll. Other programs can then be processed as these applications are running.
Evaluation of Alternatives

Alternative #1

Systems Costs

The monthly costs for machine rentals have been supplied to us by the manufacturer and is broken out in detail in their proposal.

Description

1. NCR 500 system (as proposed)  
   Monthly lease  
   $1635.00

2. Modifications to existing hardware and purchase items. (Investment cost of $6,670 amortized over 5 years)  
   111.44

3. Development costs  
   (pre-programming, building modifications, forms, air-conditioning) $12,000 over 5 years  
   200.00

4. Personnel Costs  
   (2) programmers-operators  
   1 @ $700, 1 @ $450  
   1150.00
   (1) source document recorder  
   450.00
   (1) sorter  
   450.00

   Total Estimated monthly cost  
   $3,996.44

System Savings

The staff associated with the new system will replace certain personnel requirements associated with the present system. It is anticipated the following reduction in staff can be affected in the following areas:

Payroll:

One person should be eliminated from this area, as present manual operations, extensions, recopying of payroll deductions, check printing, etc. will all be done by the data processing department.

Credit Follow-up:

Presently 4 1/2 people constitute the credit department, which includes follow-up of open accounts. It appears that a reduction of a 1/2 person
would result when statements are prepared automatically.

It seems probable that the workload of this group could be made considerably more efficient during the follow-up procedure, when open accounts are processed on an exception basis and the follow-up clerks could be provided a listing of those patients whose accounts have not received a cash payment within a certain set of criteria established by the hospital.

**Insurance clerks:**

In the initial stages of implementation a reduction of 1/2 person is feasible. Presently, the insurance billing clerks must extend, type heading information, and pro-rate the patient's bill. The extensions and totaling will be accomplished initially with the system, and a standardized bill (for all insurance companies) would reduce the duplicate typing presently required. An insurances pro-ration program at a later stage of implementation for Blue Cross-Blue Shield patients could reduce the number of insurance clerks by 1 1/2.

**Posting:**

The proposed system will transplant certain of the posting operations from the present posting functions, into the data processing department. It is anticipated that all in-patient, and out-patient charges will be posted through the NCR 500 system. Payables will still be handled through the present posting machine. At least two full time persons should be reduced from the present posting operation when the system becomes operational. This assumes a point in time when in-patient and out-patient accounts are being processed. Presently 3 people are assigned to this function, so that a reduction of 2 positions should be realized.

**Summary of System's Savings:**

<table>
<thead>
<tr>
<th>Difference of Cost vs. Savings:</th>
<th>Monthly $2250.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Monthly Cost</td>
<td>$3996.44</td>
</tr>
<tr>
<td>Estimated Monthly Savings</td>
<td>2250.00</td>
</tr>
<tr>
<td>Alternative #1</td>
<td>$1746.44/month Additional Cost</td>
</tr>
</tbody>
</table>
Alternative # 2

Systems Cost

An examination of the accounts receivable function indicated that prior to June 1, 1966 each accounts receivable clerk was responsible for 5400 open accounts. Although a standard of 150 accounts/day/clerk has been established, this standard has not been achieved.

Present measures indicate a volume of 125 accounts processed/day/clerk. Prior to July 1st the turn about time (elapsed time between follow-up of an individual's account) amounted to 60 days (chronological) or 42 work days. Subsequent to July the receivables have increased so that each receivable clerk is responsible for 6600 open accounts. The net effect of this increase has caused the turn about time to be 74 days (chronological) or 53 working days. Ideally open accounts should be screened at least every 30 days (that is proposed with the EDP system.) In order to accomplish this, 5 receivable clerks would be required. This would mean an increase of 3 over the present staffing.

<table>
<thead>
<tr>
<th>Alternative # 2</th>
<th>Monthly Cost</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>$1350.00</td>
</tr>
</tbody>
</table>

Comparison of Alternative Cost:

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative # 1</td>
<td>$1746.44</td>
</tr>
<tr>
<td>Alternative # 2</td>
<td>$1350.00</td>
</tr>
<tr>
<td></td>
<td>$396.44</td>
</tr>
</tbody>
</table>

The difference in expected costs favors alternative # 2, however, the two alternatives do not represent equivalent benefits.

System Benefits from Alternative # 1.

1) Ability to grow in volume of data processed with less additional personnel than present system. This statement needs clarification in that certain areas (e.g. - receivables) can take on additional growth (increase in accounts) without additional people, while other areas (e.g. - patient charges) would not differ considerably from the present system. Should patient charge volume increase a need for additional man-hours would be required.

2) Better Financial Reports
   More comprehensive analysis of financial information is possible as a result of by product information
3) The opportunity to become familiar and experienced in data handling procedures involving computers. The system under discussion represents a step in the direction of more sophisticated equipment but does not entail a leap frog approach. This experience could prove highly beneficial in terms of the future impact computers will have on hospital management.

4) Utilization of present personnel and their skills. Although it is anticipated that one person trained in programming would be required, the additional staff should be formed from within the present business office.

5) Reduction in the present accounts receivables active file from 110 days to 85 days.

**Systems Benefits from Alternative # 2**

Reduction in the present accounts receivable active file from 110 days to 85 days.

**Summary**

Should either alternative be implemented by the hospital it will impose an additional requirement on the required space for the business office activities.

The NCR 500 system will affect the cash flow position of the hospital. Certain costs (developmental and modification) were amortized for annual cost comparison but will require a cash outlay at the time of incurrence.

We feel that those elements necessary to reach a decision between alternatives has been investigated and that Foote Hospital should proceed to implement a NCR 500 system.
April 3, 1967

Charles Skinner
Administrator
Foote Memorial Hospital
Jackson, Michigan

Dear Mr. Skinner:

We have reviewed the proposal submitted by Commonwealth Associates for the provision of a shared computer system to Foote Memorial Hospital.

Our evaluation of this proposal and subsequent discussions with Commonwealth personnel have provided us with the following recommendation:

The proposal is unacceptable to Foote Memorial Hospital at this time and therefore should be rejected. The reasons for providing this recommendation are:

1) The cost for providing the service quoted exceeds the cost of existing alternatives.

2) The uncertainties associated with Commonwealth's comprehension of providing shared services of this nature.

Since the uncertainties mentioned in (2) have been extracted from the written proposal and from discussions with Commonwealth personnel, we will elaborate on these points.

1) The Cost of Service - Some serious questions regarding Commonwealth's method of establishing charge rates exist. For instance, it appears the basis presently adhered to is to distribute the total cost (machine + direct and indirect overhead) as a percentage of machine utilization. Although this appears equitable from a machine standpoint, it does not necessarily appear equitable to distribute direct and indirect overhead in this fashion. Two other methods which could have been explored are:

   a. marginal cost - examining those elements which add to the present cost of operation due to the increase in business.

   or b. revenue distribution - distributing indirect overhead as a function the amount of revenue associated with the activity.

   or c. combination of the above.
It seems worthwhile to consider the method used in that it obviously will effect future charges to the participating hospitals. An obvious disadvantage to the present method is that Commonwealth overhead can continue to grow (dollars not percentage) unrelated to the hospital activity it is serving and yet some time in the future it will be reflected in the charges to the hospital.

There is not an easy answer to this question of charging but a more definitive plan than that presented has to be developed.

One may reasonably argue that the method Commonwealth chooses to charge the hospitals is only Commonwealth's concern, and that the hospitals only concern is to determine whether the cost is more attractive than other alternatives. If the only basis for considering the shared utilization of the 360-30 system was to process the business office applications this would be true. However, the concern for this service is not to provide basic business office applications, but to enable the hospital the flexibility and growth to applications involving aspects of the hospital other than the business office.

2) The Responsibilities of the Parties - Information regarding the responsibilities of Foote and Commonwealth are not clearly evident at this point in time. What is evident is the following:

   a. Commonwealth has placed considerable confidence in the manufacturers to develop and help to modify the application programs. Commonwealth's contribution to this development is (1) man working with the manufacturer and therefore schedule reliability is now manufacturer dependent although Commonwealth's responsibility.

   b. Agreement considerations - The proposal does not cover, nor has subsequent discussion discovered, what would constitute an acceptable agreement on the part of Commonwealth with regards to (1) agreement's length of time, (2) cancellation privileges and considerations, (3) re-negotiable items, (4) a method to determine future charges for advanced applications.

3) The Value of Cooperation - There seems to be little value in attracting additional hospitals to enter the system in that the dollar advantage to a participating hospital is minimal. In the case of only Foote participating without any additional hospitals, the net increase to Foote is only $6000/year. This seems to be trivial if one is concerned with standardization versus non-standardization.

4) Other Cooperative Data Centers - A brief survey of existing (non-profit) data centers providing similar services as those being proposed indicates that the cost for providing these services is lower than those proposed by Commonwealth.
This is mentioned because data processing services will probably be offered to Michigan hospitals in the near future by hospital sponsored organizations and the ability to provide a better cost seems reasonable in view of those presently operating.

Summary:

We believe that Feote's interest would best be served by installing a NCR 500 system as recommended by our previous report. By installing the NCR 500 system, Feote will have deferred for a period of 3 to 5 years the potential ability to utilize data processing beyond business office applications. In view of the present utilization of computers in non-business office applications, we believe this deferral does not represent a detrimental decision.

Respectfully,

Mathew W. Steiner
Associate Director
# Cost Summary

## Commonwealth

<table>
<thead>
<tr>
<th>Category</th>
<th>Yearly</th>
</tr>
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<tbody>
<tr>
<td>1) Inpatient</td>
<td>$30,450</td>
</tr>
<tr>
<td>2) Outpatient</td>
<td>$12,600</td>
</tr>
<tr>
<td>3) Payroll</td>
<td>$6,097</td>
</tr>
<tr>
<td>4) Development</td>
<td>$4,350</td>
</tr>
<tr>
<td>5) Source preparation</td>
<td>$5,952</td>
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<tr>
<td>6) Source converters</td>
<td>$3,360</td>
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<tr>
<td></td>
<td>$62,809</td>
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</table>

**if other hospitals join**

<table>
<thead>
<tr>
<th>Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7) Systems man - 1/2 time</td>
<td>$5,000</td>
</tr>
<tr>
<td>8) Messenger 1/3 (9000)</td>
<td>$3,000</td>
</tr>
<tr>
<td></td>
<td>$64,569</td>
</tr>
</tbody>
</table>

Potential Savings

-27,000

**Additional Cost/Year**

$37,569

**Additional Cost of NCR/Year**

-20,957

Cost Difference of Commonwealth vs NCR

500 Given **all** Hospitals Participate

$16,612

Additional Cost/yr.

for Commonwealth