Best Practices: Voice Activated Mail Sorting

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ABSTRACT:

We chose Voice Activated Mail Sorting Software to automate the labor intensive process of sorting mail (6 million pieces annually) for campus delivery. Research confirmed that neither Optical Character Reading sorting equipment nor mechanical mail sorting equipment was practical for us.

Our research indicates that Voice Activated Mail Sorting Software will:

- *Allow us to reduce the number of times we handle a letter by 25%,*
- *Allow us to sort with 100% student help when necessary,*
- *Allow us to train students to sort the most complicated route in one day, and*
- *Allow us to increase sort accuracy and speed.*

We can reduce staffing by one full time employee. The savings will pay for two sort systems and contribute $4,000 to other expenses. The $18,000 annual savings will repeat in future years.

INTRODUCTION OF THE ORGANIZATION:

University Mailing Services (UMS) at the Oklahoma State University Stillwater Campus is responsible for sorting and delivering incoming US mail and intra-campus mail to each department. Funding for this operation is E & G (direct state) as opposed to a stores' account.

STATEMENT OF THE PROBLEM/INITIATIVE:

The UMS direct state budget is 75.5% labor. All UMS stores accounts have experienced reduce labor costs as a result of computer automation of the work processes. Mail sorting and delivery had not profited from automation. UMS evaluated Optical Character Reading (OCR) sorting systems and mechanical sorting systems. Neither approach reduced costs. Both required additional floor space and a new building.

Oklahoma State University designed and funded mailing services to sort by the department name not by the individual employee's name.

Several events have forced UMS to sort by the individual's name:

- Mail addressed only to the individual,
- Thirty departments with employees in multiple locations,
- Multiple college reorganizations show different departments for the same individual,
- Administrative consolidations are ahead of mailing lists

Several factors increased the reliance on student labor with an accompanying increase is missorted mail:

- Sorting by individual name increased the complexity,
- State funding stagnated or decreased,
- Inbound accountable mail grew rapidly,
- UMS had to reduce full time staffing by 2 sorting staff since 2000,

Design:

UMS management has always reviewed one operation a year in an attempt to avoid paradigm shifts like the quartz watch. That practice led to the evaluation of OCR's and mechanical sorting equipment.

UMS management thought Voice Activated Software might be an answer, but did not know the necessary formulas to validate their "instinctive feelings". They contacted the School of Industrial Engineering for assistance. Industrial Engineering suggested a Senior Design Team.

The team spent one semester observing the UMS operation, viewing Voice Activated Software (VAS) in use, and observing UMS and USPS workflow patterns. The team recommended the purchase of Voice Activated Software and not replacing a retiring sorter/carrier. The salary saved would pay for the software in one year. The look up speed of the database and the ease of voice training for the user would allow a green freshman to sort the most complicated route with 1 to 2 days training.

UMS competitively bid the VAS. The bid resulted in the purchase of two stand alone units not one for less than the salary and benefit costs of the retiring carrier for one year.

UMS employed the standard dual sort used by most mail services. The first sort grouped mail by 9 delivery routes. The second sort grouped mail by the individual delivery stop on each route. Twelve high volume stops were sorted individually in the first letter sort. Each letter was sorted 2.X times where X represents handling for two pieces sticking together, inadequate address look up, etc.

The Senior Design Team recommended combining the two sorts at the route board sort units. Routes leave UMS at 8:00 AM, 10:00 AM, 1:00 PM and 3:00 PM. Mail would enter the system at the 10:00 AM boards. The sorter would sort the 10:00 AM board in one handling and separate all other mail into designated routes. This would allow 25% of the mail to be sorted in 1.X handlings. The total touches would become 1.75X. Three sort boards would become surplus and four tables with storage could be reassigned to other operational areas.

IMPLEMENTATION:

Between the decision to buy and the delivery of the systems, Oklahoma tax collections crashed creating a major budget crisis statewide. UMS received a 10% budget reduction on top of the 4 full time positions already eliminated. Conservative expectation is for an additional 7% reduction in the next three months.

The VAS system is designed to allow 100% student sorting when the two full time sorters are on sick or annual leave. Recent budget development forces the consideration of permanent "student only" sorting.

Implementation centered on two major issues – the employee database design and the floor plan layout/workflow pattern.

The employee database is key to sorting accuracy. It requires that employee name become the top sorting criteria. We knew of ten departments that housed employees in multiple locations. The HRS database did not distinguish location. We worked with the HRS department to code the employee database by delivery location. Then we used the revised database to sort 6 tubs of Undeliverable As Addressed mail. We identified 15 to 20 additional troublesome departments.

We merge the HRS database, the Residential Life single student database, and the Married Student Housing database. The vendor is writing updated micro's so that we can merge weekly with a minimum of keystrokes.

We worked with the vendor on a workflow plan based on our ideas, the design team inputs and the vendor's input. The vendor suggested we design two identical systems to give us 1.X sorting. We looked at the budget crisis and agreed. We failed to do the simple arithmetic that would have told us that we had three times the volume that the design would handle.

We dug out of the carnage and designed a compromise layout that will bring us to 1.5X touches per letter. We discovered that one person can sort two routes at once. We designed four work areas of two routes each. The dormitories have a separate ZIP Code and a fifth work area. By manning all four work areas we can sort approximately 50% of the volume in one touch. We assigned the VAS to the two routes that we always reserved for full time employees. Thus we built in the ability to sort 100% with students if it becomes necessary.

We found three pitfalls – workflow volume, software limitations, and background noise.

We did not verify the numbers on the vendor-suggested layout. We installed on Wednesday after two days of Fall Break. We brought mail delivery to a standstill for eight working days and slowed it for another five.

Each time you say a name, the VAS counts a transaction. Early versions were written over Access. Access does not process millions of transactions smoothly. Most vendors are converting to SQL.

We operate inserters, labelers, folders, etc. in the same large room as the VAS. Rock music can produce interesting sorting patterns.

BENEFITS:

We received several benefits from the purchase of the software:

- We have reduced four Classified position since January 1, 2000,
- Seventy-five percent of the fourth position funded two sorting systems,
- We have absorbed an additional 10% budget reduction ($27,000),
- We improved productivity by having fewer touches per letter,
- We can meet sorting accuracy standards with 100% student help,
- We can still process mail within 24 hours.

RETROSPECT:

I would do the arithmetic on the vendor's suggested design before trying it. It is better to have a $15 calculator tell me the volume is too large than it is to have the entire campus tell me.