PAPER-DRIVEN TO PAPERLESS: TECHNOLOGY IMPLEMENTATION DRIVES PROGRAM INNOVATION

By Moshe ben Asher, Ph.D.

It was one of those times when, as we used to say, I was between gigs. My wife and I had recently left the interfaith federation of congregations we had organized in the San Francisco Bay Area. Our involvement with the project had culminated with a 700-person event that brought together members and clergy from 16 congregations. We had decided to take a "sabbatical" to write a manual that would translate the essentials of congregational community organizing for use by Jewish congregations.[1] So we had moved to a small town north of San Francisco where the living was easy and the rent was cheap.

As luck, fate, or providence would have it, the money ran out just about the time the words did. I found myself scampering in a small-town labor market for virtually any job that would keep us from taking up residence under the freeway. My background included a stint many years earlier as an analyst, project director, and vice president for a national public-administration consulting firm, so I began calling all the social service agencies in the area to see if I could drum up some kind of temporary administrative work.

Getting My Feet Wet

Before long I was doing reception and record-keeping jobs at the front desk of a two-decades-old criminal justice diversion program that was part of a large, nonprofit-umbrella corporation. The corporation, founded some 25 years earlier to serve the needs of low-wage workers and their families throughout the state, operated a couple of dozen programs and services with a $15 million budget.

I recall the day I met with the director for the first interview. After we had talked for a half-hour or so, she introduced me around and then gave me a tour and an orientation to the program's operations. Since I was being considered for an administrative position, we spent some time in the reception and record-keeping area. I was impressed—*appalled* would be more accurate—at the pace and complexity of the work performed by the three employees who were staffing the front desk. I was then given the opportunity to work with them for an hour to get hands-on experience of the operation. By the end of the hour my head was spinning from the blizzard of paper and my writing hand was aching from constant high-speed scribbling.

The reception and record-keeping activity of the diversion program's front desk became my work venue for the next several months. I quickly discovered that my two regular co-workers and I, working non-stop at top speed, would inevitably fall farther and farther behind in meeting the demands of the work. Completing intake forms for new clients, maintaining client files, producing and delivering daily correspondence to the courts, documenting fee collections, etc., could only be managed with continuous bailouts volunteered by the most competent and committed of the casework staff. At that time the program was using about a hundred different forms. Caseworkers who were otherwise not occupied with clients or essential tasks of their own threw themselves into the breach—they were regular and familiar faces staffing the reception desk, searching for "disappeared" files, filling out intake forms, and writing court reports.

It quickly became clear to me that the system was on the verge of collapse. The program had

grown from an average of 30 to 300 intakes a month in the previous six months, with an administrative system that was entirely paper-driven. The intake process alone required manually filling out more than a half-dozen different forms, with more than a dozen overlapping data fields[2]—so that the reception and record-keeping staff spent inordinate amounts of time redundantly writing the same information (name, address, date of birth, criminal charges, etc.) about every client who entered the program.

Needless to say, the three of us were exhausted and demoralized much of the time. On a daily basis numerous files were "lost" and, to answer questions from caseworkers, court officers, referring agencies, and the like, virtually all of the program's staff were engaged at one time or another in "panic pursuits" to locate the missing files. Records of staff performance, client progress, and financial payments were handled through three entirely separate hardcopy systems, so the program director was without easily cross-tabulated[3] management information to make personnel and other managerial decisions. When such information was absolutely necessary, its collection and interpretation typically required assigning the assistant director, counseling supervisor, or one of the casework staff to invest long hours generating the needed reports.

Student interns regularly complained that they couldn't find files for cases that were passed on to them—casework notes, records of fees paid, drug tests taken, etc., evaporated into the mists of myriad four-drawer filing cabinets. Clients occasionally rebuked us with tales of court appearances in which, although having completed their diversion program obligations, they were taken into custody because the program's notice of their successful completion never reached the court. The assistant director, a competent and committed manager, talked often about the frustration of trying to control her eating habits and weight while working under the endless pressure of producing personnel productivity reports for which data were nearly impossible to collect and analyze.

My own nightmare occurred one day during our lunch hour when the program was closed and the double glass front doors locked. A client arrived a few minutes after noon. She knocked on the door and, after I pointed to the sign that said we were closed during the noon hour, she continued to knock insistently. Desperately needing the lunch break to recover my energy and spirit, plus resentful for the interruption, I opened the door and rudely informed her that we were closed. When she showed me the court referral slip that indicated our hours were "8 to 5," additionally making the point that she only had time to come on her lunch hour, I told her sarcastically that she should settle that with the court clerk who designed the referral slip. That

night as I related the story to my wife, ashamed and embarrassed by my unkind and thoughtless behavior, I was struck by how the pressures of the job had such a potent effect on my attitude and actions. (Calm and contrite the next day, I wrote a letter of apology to the woman. Some time later I was relieved when, coming for her appointment with a caseworker, she approached me and said she was pleasantly surprised by my letter of apology and forgave my inexcusable behavior.)

The circumstances of the job had immediate and pernicious effects on my personal life. I arrived home from work every afternoon at 5:30 invariably exhausted, drained to the point of wanting nothing but TV's narcotizing effects. In a dramatic change in my lifelong adult sleeping habits, I found myself climbing into bed *before eight o'clock every night*, sometimes as early as 6:30 or 7:00.[4] Needless to say, in a wink my physical and emotional state became a source of domestic tension, for which no remedy or resolution appeared in sight.

My co-workers, two young Latina single parents, both of whom were from low-income backgrounds, were living at home with their parents and siblings. They often talked about their own family tensions and problems, which they associated with the pressures of the job.

Values and Principles

Thankfully, the diversion program director was acutely aware of the crisis and ready to take whatever steps would be necessary to resolve it. As I got to know all of the staff—managerial, casework, and administrative support people—we talked one-to-one about their hopes and frustrations, the goals they had to help the program's clients turn their lives around, and the pressures and obstacles that were frustrating them.

The piles of paper were not only producing a series of administrative catastrophes, they were undermining the capacity of the dedicated casework staff to realize in practice the values for which they were investing their time, energy, and spirit. The overall effect was demoralization despite managers who were otherwise not only efficient but kind and helpful too. The values of helping to uplift the lives of individual clients, protecting the public from further criminal acts, and training future social service caseworkers were all jeopardized and occasionally poisoned entirely by what could most charitably be called administrative malfeasance.

We began to formulate some of the principles that would necessarily govern the development of a new system if it were to serve those values.

- We would have to create a consensus and a constituency within the program for administrative modernization through computerization.

- We would have to create a management information system of relational databases[5] that would ensure clients' interests were administratively supported in all respects.
- We would have to design and develop a system that would balance the casework needs of the clients with the task needs of the staff and managerial needs of the corporation.
- We would have to actively engage program staff to share in system design and development responsibilities and to upgrade their own computer knowledge and skill.[6]
- We would have to be non-defensive in analyzing and acknowledging our mistakes in the course of designing and developing the system, and openly communicate them to the program's staff to solicit their corrective feedback.
- We would have to be proactive in reaching out to referral agencies with which we had active relationships, engaging them in the design and development process wherever it might have implications for our working together.
- We would have to guide design and development of the system in a way that would increase and strengthen program and staff capacity, without additional personnel resources (although hardware and software costs could be amortized).

System Design Criteria
Once we had clarified the values and principles that would guide the design and development of the system, we formulated the design criteria:

- The system would have to incorporate existing flat-file[7] or spreadsheet databases.[8]
- The system would have to allow the program to tailor its own records, forms, and reports to accommodate its unique requirements.
- The system would have to be easy to modify by the program's technical staff, so that forms, reports, and databases could be modified or added as needed.
- The system would have to be easy to learn by program staff, both end-user line staff and the program's supporting technical staff that would have programming, maintenance, and backup responsibilities.
- The system would have to enable the program to freely aggregate its own data to produce needed reports and forms, both for day-to-day operations and reporting to corporate management, funding organizations, and regulators.[9]
- The system would have to enable the program to generate payment and billing data that could be readily summarized and that, in the future, could be reported to the corporate level as individual transactions.[10]

- The system would have to allow the program to aggregate its data beyond its own boundaries (say, for corporate purposes) without compromising client confidentiality.[11]

Baby Steps & Bigger Visions
Once the decision was made by the program and corporate managers to computerize the program, the outlines of the decision were communicated to the full staff. Overwhelmed as they were by the massive inefficiency of the existing system, the initial reaction was one of euphoria. A kind of miraculous intervention was about to change the oppressive conditions of their day-to-day work.

Some of their enthusiasm was justified. But it was essential that we signpost the coming trials and tribulations they would face, especially during the transition period while the old paper-driven system was being phased out. We suggested to them that they would be challenged by several unavoidable circumstances:

- Although they had already mastered a complex paper-driven system, they would have to learn a new and complex computerized system (notwithstanding that it would be much more efficient once learned).
- For some period of time they would have to use *both* systems, at least until all the clients admitted under the old system had finished or been terminated from the program.
- The new system would inevitably have bugs and not work properly for some time, which would decrease their efficiency.
- As the principal users, they would be expected to identify and document the bugs in the new system, and then help to work them out.

Once I had begun to know the individual members of the staff and their hopes and pressures, my task was to master the entire administrative system, that is, to understand its functions, and how the paper was both produced and used by the staff. Within a few weeks I was able to make a number of proposed "mechanical" changes to improve efficiency.

In several instances it was obvious that by reallocating tasks, simply parceling out the work so that particular individuals became "specialists" of a sort, efficiency was markedly improved. In some cases, modifying workflow by moving workstations made a job more bearable. Relocating and rearranging equipment—for example, moving a printer or scanner from one location to another—sometimes brought about meaningful changes in usability and thus lessened frustration.

The initial reaction to these changes by the support staff might fairly be characterized as "radical amazement." The day after all but one of these changes had been made, the spirit at the front desk

was reminiscent of the first day of summer vacation from grammar school. My two Latina co-workers must have congratulated themselves and me scores of times in the course of the day. They were shocked and pleased with how much less work they had to do for so little effort on my part.

The change that seemed to be the most mind-boggling and unanticipated by the whole staff was the relocation of the large, horseshoe-shaped public reception counter. Moving the counter made it possible to create an inviting public waiting room at the front entrance of the building, which was much more comfortable for clients when they had to wait for a caseworker. The new location also served, however, to eliminate excess space that had previously existed behind the counter, which had become a gathering place for otherwise unoccupied caseworkers to visit and occasionally engage in inappropriate conversation about their clients. This was the first instance in which a mechanical or technical change had the effect of driving a programmatic change. Many more were yet to come.

Withal, these changes produced noticeable improvements in efficiency and raised morale, particularly among the administrative support staff. But realistically, as we all knew, we had barely made a dent in the problem, and the crisis still loomed.

By this time the management staff and I had agreed that, if possible, we wanted to automate the system; the vision we had for the end result was one in which the program would be virtually "paperless." Moreover, we knew that once all the administrative processes were understood functionally, such as making pre-sentencing recommendations to the court, the numbers and types of forms would probably change, as would the methods of their delivery. For instance, we anticipated that no longer would court reports be hand-carried every afternoon to the administrator's office; we could foresee that intranet[12] e-mail would be more efficient, less costly, and less vulnerable to the vagaries of employee sick days, rush hour traffic, and inclement weather. This awareness prompted us to begin making plans to establish liaison with the court administrator's office and other organizations and agencies with which we had referral relationships.

In our meetings with the court administrator and her staff, as we did with other referral organizations and agencies, we informed them that we were computerizing our administrative operations. We invited them to participate actively in the process to ensure that the results would meet their needs as well as ours, and throughout the development of the system we talked regularly with them and asked for their feedback and suggestions on proposed changes that might affect their operations. Not surprisingly, they were not only charmed by the idea that we would include them, but they were very helpful in working out a couple of sticky problems that required the involvement of the County's data processing department.

Software Adoption & System Introduction

The DBMS (database management system) that we had begun to develop was based on the use of an off-the-shelf relational[13] database application.[14] We chose Lotus Approach (instead of the more popular Microsoft Access) for a number of reasons. While both of these relational database applications offer a panoply of powerful features, Approach had what we regarded as the decisive advantage: Virtually every reviewer gave it top marks for user-friendliness. Our thinking was that we wanted to build a system for which we could train one or two of the regular administrative support staff to handle day-to-day maintenance, upgrading, and backup tasks.

My own experience with database applications had been limited to using flat-file software, which allowed the creation of simple files comprised of a number of data records. Imagine a recipe box with file cards and you've got the idea. In contrast, the relational database packages allowed for the creation and *linking* of multiple databases, which afforded the opportunity to develop more sophisticated paperless administrative systems. And so, as I began to document the details of the existing administrative system—all the forms, reports, and letters—I could visualize how it would all come together as a total system. At the same time, I began designing and developing the individual databases that would be required.

In the beginning, not to exaggerate, it was somewhat terrifying. I was regularly overwhelmed, both intellectually and emotionally, by the complexities of relational database design and development. Every few days I would get stuck for hours, occasionally for a day or more, trying to figure out how one database should be related to another or trying to develop a formula for a calculated field.[15] I would come home wired from eight or nine hours of intense concentration, craving relaxation, only to find myself sleeping fitfully, waking up repeatedly with a kind of droning anxiety, thinking that I had bitten off more than I could chew. I was way over my head! Yet after several weeks of this enervating fear I began to see that I didn't have to work out all the answers on my own. I discovered online resources, where one could post a problem and in hours have one or more expert solutions offered. Then I found fax-back technical support by which one called a toll-free number, selected the relevant problem from an extensive menu, and within minutes received a faxed technical document with the needed answers. Finally, best of all, when the going really got tough,

the Lotus technical support staff could always point to the solution to any problem. Withal, as the weeks turned into months, my confidence and competence as a relational database designer and developer grew reciprocally with the system we were creating.

Much of my work at this time involved informally talking with staff as they did their regular work—asking questions about what they were doing, how they were doing it, what was working and not working, how they would improve the particular process in question, and so on. Invariably at the outset they would be somewhat chagrinned to be asked for their opinions—seemingly it was entirely unexpected and outside of their experience. So they were somewhat self-conscious initially. I recall one intern, who later went on to get his MBA at an eastern university, repeatedly asking me, "You want *me* to help you design the system?"

Their experiences and ideas were invaluable in my design and development work. As my efforts began to result in preliminary designs, I invited members of the staff to informally sit with me and "try out" the data-entry sequence or the report-generating mechanism or whatever. Without fail their reactions and suggestions were helpful and significantly improved the system.

Increasingly their ideas took the form of re-thinking some stage of the process, whether screening, intake, assessment, contracting, etc. No longer would casework staff have to collect fees or write referral letters. Reception staff could now more easily collect the fees and a simple keyboard command produced the required referral letter. Caseworkers would be increasingly freed from the drudgery of paperwork to concentrate on their casework.

As this seemingly casual design and development progressed, we were consciously introducing the staff to the database software—piece-by-piece and step-by-step—so when the final system was fully developed, their introduction to it would be much less overwhelming.[16]

By the time the system was ready to go online, the majority of staff members were familiar with it. Because of the regular turnover of student interns, however, a much smaller percentage of the staff members were not familiar with it. So while overall there was a great deal of ownership of the system at the outset, with many eager to begin using it, a small number of interns had to be pulled into it. We had to work closely with those who were resistant to making the change—encouraging, challenging, and supporting them.

The interns who needed more support to navigate the transition went through several stages: first there was excitement and anticipation; that was followed by fear of learning the new system; the fear gave way to frustration in dealing with the practical challenges of learning the system while simultaneously delivering services; and finally, virtually everyone achieved a comfort level and satisfaction with the computerized efficiency. It was interesting to see, however, that once the new system was in place, all new interns and caseworkers, given three hours of training, adapted to it with alacrity.

Up & Running

Within 30 days of getting the new system up and running, it was virtually free of bugs and fully used by all of the staff. Although one or two pieces of paper were still being produced in cases where a client's signature was necessary, every other aspect of the administrative operations had been computerized—from intake and screening through recording case notes to termination interviews and court communications. The consensus was that the new system dramatically improved efficiency, effectiveness, and economy, usually with an elegance of input, use, and output.

There was yet another improvement, one which I failed entirely to anticipate. As pressure was lessened on the whole staff, opportunities and energy for deepening relationships began to expand. I began to get *personally* acquainted with several of the caseworkers and one of my Latina co-workers. I remember the first time the impact of this change dawned on me. I was talking casually with one of the caseworkers and somewhat surprised to find that she was telling me details about her recent vacation—where she and her boyfriend had gone in Mexico, a wild bar they had frequented, and even some of the public sexual exhibitionism going on there, which was mildly shocking to me. But I was very much aware that this was the first time I was hearing the details of a co-worker's personal life.

A more important instance of getting personally acquainted had to do with one of my Latina co-workers. I was on the hook to identify someone on the staff who could be trained to handle the day-to-day database maintenance, modification, and back-up chores. It was a job that would take a fair amount of programmatic and technical savvy. I hadn't even remotely considered this particular young woman as qualified, but as we got much better acquainted, I realized that in many ways she was the ideal candidate. As she shared more of herself—initially she had come into the corporation as a client but she had hopes and dreams of getting ahead in the world—she made it clear that she not only had the intellectual qualifications for the job but also the motivation and perseverance that would ensure her success. My confidence in her was well placed as it turned out. More than a year after I had left the program, I had a phone conversation with the director in which she described the outstanding "technical support" they were receiv-

ing from this young woman. I thought, what a difference a relationship makes! It was a blessing that we had the time to get acquainted, making it possible for her to show her stuff and move a step closer to fulfilling her dreams.

Notwithstanding the initial and short-lived resistance or reluctance of some staff members to use the system, within weeks all of them had taken to it like ducks to water, which was not surprising since most of them had a hand in creating, testing, and debugging it. The staff training—beginning with an overview of the system, moving on to hands-on learning about all of the relational databases, and concluding with a mock screening interview—paid handsome dividends.

The management reporting capabilities built into the system included caseload analysis by demographic and economic factors, client participation assessments, and a number of staff accountability measures. This was another area in which introduction and application of the technology had the effect of driving innovations in the program. Easily generated accountability reports brought about significant changes in the frequency and substance of staff evaluations conducted by the program's managers.

The program director's appraisal of the changes brought about by computerization sums up the impact of the changes for her:

> We are no longer spending hours of staff time every day chasing files. We have eliminated numerous forms, some made superfluous because of the computerization, some combined with other computerized forms. Many time-consuming tasks have simply been phased out of our operations.
>
> We are getting much more consistent and reliable input of data into the system because our staff members are learning the principle of GIGO (garbage in, garbage out); they are learning that our relational databases and the records and forms built into them only work when the necessary data are entered completely and accurately. Our communications to the courts are much more timely and accurate than they have ever been in the past.
>
> My tools as a manager have been substantially upgraded, and our ability to implement policies of staff accountability has gone from near the bottom of the scale to somewhere near the top.
>
> The bottom line is that we are much better able to serve our clients than we have even been, and we are now ready for the challenge of the caseload and staff growth that we anticipate in the near future.

Blue Skies Brainstorming

The success of the initiative to computerize the administrative operations of this diversion program was a huge boost to morale and a shot in the arm for a tightly budgeted nonprofit corporation that stretched every dollar as far as possible to serve the needs of low-wage workers and their families.

The question on everyone's mind at the corporate level was, what next? And the answer was, let's computerize another of the corporation's programs, but one that directly serves the low-wage workers.

We had seen the extent to which the implementation of technology could drive program innovation. So instead of trying to retrofit a relational database system to an existing paper-driven system, the approach would be to engage the program's staff in a *program design process* that, in turn, would serve as the foundation for the computerization strategy.

The workshops that followed focused on the functional tasks the staff needed to accomplish to serve the program's clients. The agenda in the first in that series of workshops was as follows:

WORKSHOP AGENDA

I. What's the plan for this session?

II. What are our purposes and priorities in doing assessments?

III. How can we improve the assessment process?

IV. How can we improve the assessment form?

V. What kinds of follow-up do we need to do after this session?

The upshot of these blue skies brain-storming workshops was an unusual clarity of purpose and priority for casework services offered by the program. But they went further to define the ideal settings for assessments, their timing, and follow-up tasks. For every aspect of assessment, weighted measures were devised to facilitate communication between professional staff and for reporting purposes.

For example, assessment weightings in the area of children's education were: (5) excels in school, no behavioral problems, and English proficiency; (4) English proficiency and attends school regularly; (3) attends continuation school and bilingual classes; (2) drop-out risk, attendance irregular, may be frequently truant, possibly gang-involved, and lacks English proficiency; and (1) dropped out and gang member.

Assessment weightings were developed for income, health and safety, nutrition, community participation, employment, shelter, and adult education. Once developed, they served as the blueprint for the design and development of the DBMS. And this was only the first step; several workshops were yet to follow that would examine other facets of the casework process.

But these outcomes don't really begin to describe the experience of the staff in the workshops. It was a strange combination of their elation from the awareness that they were doing something eve-

ryone had implicitly assumed was the private preserve of the program's managers, and their wanting all the more to apply themselves fully and do an outstanding job with the opportunity they had been given. There was a comradeship and camaraderie I hadn't seen before, a spirit that seemed to animate the normally banal business of program design.

The improvements made by the criminal justice diversion program—especially the administrative transformation, staff morale turnaround, and enhanced referral relations—were deeply gratifying. But the initial experience of the low-wage workers' program produced an exciting awareness that implementation of digital technology could be an exceptionally powerful force to build the spirit and morale of a whole staff and simultaneously drive program innovation and progress far into the future.

---

[1] *Gather the People: Organizing for Awe* (Los Angeles: Kehillat Kharakim and Jewish Fund for Justice, 1996).

[2] Designated areas of a form into which a specified type of information is to be entered, e.g., first name, middle name, last name, etc.

[3] Cross-tabulations provide a view of database fields that is used for organizing and summarizing data from many records into categories and groups. A "cross-tab" shows summaries of underlying database records that are grouped by any selected database field.

[4] Empirical evidence on recovery from work, based on a study of shift-working nurses, is discussed in Peter Totterdell, Evelien Spelten, and Lawrence Smith, "Recovery from work shifts: how long does it take?" *Journal of Applied Psychology*, 80:43-57 (February 1995).

[5] A collection of data that are organized into records, each of which has a unique "identifier," such as the client's name or an assigned number, and that contain fields into which the data about that client are entered.

[6] For a discussion on creating user-oriented computer systems through the participation of end-users in system design and development, see Menachem Monnickendam, "Participative system implementation for creating user oriented computer systems in human services," *Administration in Social Work*, 24(1):57-74 (2000).

[7] The simplest type of database, containing a single set of records based on one form—for example, an address book which uses the single form with fields such as name, address, phone number, etc., and contains a set of related records.

[8] Spreadsheet databases are functionally equivalent to their flat-file counterparts but employ spreadsheet software (e.g., Microsoft Excel or Lotus 1 2 3) rather than database software.

[9] Procedures for obtaining computerized cost per closed case and a case outcome rating for each closed case are presented in Douglas J. McCready, Stephen Pierce, and Sheldon L. Rahn, "Third generation information systems: integrating costs and outcomes. Tools for professional development and program evaluation." *Administration in Social Work*, 20(1):1-15 (1996).

[10] Transaction records are database records that document a single transaction, e.g., a single fee payment or delivery of a single "unit" of service, in contrast to combining and processing all data that relate to a client's payments or services in "batches."

[11] See Sheldon R. Gelman, Daniel Pollack, and Adele Weiner, "Confidentiality of social work records in the computer age," *Social Work*, 44(3):243-52 (May 1999). See also Tim Davidson and Jeanette R. Davidson, "Cost-containment, computers, and confidentiality," *Clinical Social Work Journal*, 23:453-64 (Winter 1995).

[12] An in*tra*net is a "private internet"—a closed, secure electronic communications environment that uses the Internet's standard protocol for communication, TCP/IP, that centers on an internal server and normally forbids access from the Internet—for the exclusive use of one organization and its organizational partners, in this case the County and a group of nonprofit service providers, connecting all their LANs (local area networks) and users, both locally and at remote sites.

[13] A relational database program allows a database developer to bring together into a single form data from more than one database, report, or other view by joining the databases on a common field—for example, a developer might link a database of fees paid with a database of services provided to show in a third view the relationship between fees paid and casework hours.

[14] For a detailed discussion of computer software classifications related to social work, see P. Nurius and R.A. Cnaan, "Classifying software to better support social work practice," *Social Work*, 36(6):536-42 (November 1991).

[15] A calculated field is a field in which data are *not* entered manually but the value of which is determined by one of a possible number of calculations based on the values entered in other fields.

[16] We also authored an 85-page "Data Processing Operations Manual," which was used as a supplement once a member of the staff had received hands-on training.

Click here for more community organizing and development tools.

Help support the work of Gather the People with a tax-deductible donation by clicking here!