Adopting IT: Food Program Sponsor Discovers It's No Picnic

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IDEA GROUP PUBLISHING

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EXECUTIVE SUMMARY

Small companies are often reluctant to try innovative approaches to information management because of the cost of the hardware and software, the potential disruption of processes already dependent on overstressed resources and the lack of in-house expertise. This case looks at the experience with information technology (IT) implementation of one small nonprofit company that provides administrative services for child care providers. Like many companies of all sizes, the focal company realized it must adopt new information technologies in order to survive. The company fit the profile for small companies just entering the world of IT. It experienced the expected internal problems associated with change. And then it discovered that its size and its relationship to government oversight agencies, themselves struggling to implement IT, posed special threats to its survival.

BACKGROUND

The last half of the twentieth century saw a major movement of women out of the home and into the workforce. With that move came an increased demand for child day care that, in turn, spawned tens of thousands of family day care homes and day care centers, most of them licensed small businesses. Besides providing day care services, many of them participate in various state and federal programs aimed at subsidizing working parents, providing pre-school education to children, and improving nutrition among children of working parents. The company in this case — Quality Care, Inc. (QCI), a pseudonym used for this case — is a food program sponsor whose primary business is to administer day care homes and centers that participate in the federal government's Child and Adult Care Food Program (CACFP). (See the list of Online Resources at the end of the case for links to Web sites related to the CACFP.)

A large part of the state-licensed sponsor's function consists of processing documents for its supervising state agency. Sponsors are compensated for their services based on a federal rate schedule keyed to the number of clients served. As a sponsor's client list grows, the paperwork burden grows proportionately, but the marginal rates are regressive. At some point, a sponsor choosing to

increase its revenue by adding clients must turn to information technology to process the increased paperwork at reduced cost and within mandated deadlines.

When QCI's owner made the decision to incorporate information technology into its processes, the company fit the profile for a small business just entering the world of information systems (DeLone, 1988; Nooteboom,1988; Igbaria & Zinatelli, 1997; Soh et al., 1992):

• they couldn't afford to employ internal IS staff;
• they had a general lack of computer knowledge;
• they had inadequate hardware and software;
• they needed to rely on outside resources;
• they had a lack of financial resources and technical support;
• they had recruitment difficulties;
• they had a short-range management perspective imposed by a volatile competitive environment.

As pointed out in Taylor (1999), small businesses implementation challenges are often more daunting as a result of those conditions. Many of the motivators and inhibitors described by Cragg and King (1993) appear in the case. Perhaps the most pertinent to this case is the significance of the owner's level of enthusiasm.

While the usefulness of a newly implemented information system was immediately apparent to both QCI's staff and clients, the sponsor's staff experienced varying individual rates of acceptance, giving rise to serious internal problems. Davis' (1989) observations with respect to perceived usefulness versus ease of use and their relative impact on acceptance are reinforced in the case.

But, the literature says little about the effect of discordant rates of technology implementation within and between the levels of an industry dominated by small businesses. Rates of technology implementation were different between QCI and its state oversight agency, and between the state and federal oversight agencies. Those varying rates of implementation coupled with a lack of coordination among organizations at various levels in the industry made industry-wide adoption of information technology appear chaotic. The inevitable result was increased sponsor uncertainty.

SETTING THE STAGE

Since 1969, the U.S. Department of Agriculture (USDA) has funded the CACFP with the goal of providing nutritious meals to adults and children who are in day care facilities. By 2000, the program reached an annual funding level of $1.7 billion and served over 2.4 million children. (See Tables 6 and 7 in the Appendix for data on the CACFP.)

To administer the program, the USDA makes grants to the states that, in turn, designate administrative oversight agencies. Each state is responsible for establishing its own policies and procedures for the program's operation, subject to administrative guidelines provided by the USDA and the enabling federal and state legislation. In the State of North Carolina, the administrative responsibility for the program rests with the Nutrition Services Section (NSS) of the Department of Health and Human Services.

The NSS has a staff of 15 state employees who administer a variety of nutrition-related programs, including the CACFP. More than 5,000 day care homes and day care centers participate in one or more of the programs administered by NSS. To support them, NSS works directly with the 100 county governments, each of which has a department that deals with nutrition programs. In addition, NSS contracts with more than 40 nonprofit food program sponsors across the state for additional administrative support.

Participation in the CACFP is voluntary on the part of a day care provider (a home or center), and each participating provider must choose either NSS or a sponsor for its administrative support. In its claims processing role, QCI collects and processes data on providers and their enrolled children, and submits claims for reimbursement on their behalf.

Sponsors are responsible to the state for nutrition training, food safety and reimbursement for meals served by participating homes and centers. Under the CACFP, meals and snacks served to children up to the age of 12, and which meet certain nutritional guidelines, are reimbursable.

QCI provides services to over 500 homes, 200 centers and more than 14,000 children in an area covering the eastern half of the State. Each client home or center must be visited several times a year by QCI staff. While more than half of their clients are located within 75 miles of QCI, some are more than twice that distance away. Table 1 gives an overview of the homes, meals, and reimbursement amounts associated with QCI for fiscal year 2000.

A day care home is typically a small family business in which the owner takes in a few children other than his/her own and provides care for a fee. Depending on a variety of qualifying requirements, the home may have as few as two children or as many as several dozen. The day care center, on the other hand, can be a nonprofit or for-profit business, and is subject to more stringent standards. A center may have hundreds of children enrolled.

Day care homes participating in the program are subject to a system called "tiering" in which each provider is classified on the basis of income, school district of its children, family income for each child and other considerations. The rate of reimbursement for meals is affected by the tier classification of the day care home. Most centers include meals as part of their fees. Centers receive payments based on the type of meal served and the child or adult's eligibility for free, reduced-price or paid meals, while shelters and after-school care programs are reimbursed at the free rate.   Table 2 shows FY2000 reimbursement rates for centers.

Day care homes cannot charge separate fees for meals. Higher payments (Tier I) are paid to homes in low-income areas and to low-income providers. Meals and snacks served to children who are eligible

Table 1: QCI Reimbursements Processed or Homes–2000

Month	Number of Homes	Average Daily Attendance	Tier I Meals and Snacks Served	Tier II High Meals and Snacks Served	Tier II Low Meals and Snacks Served	Total Meals and Snacks Seerved	USDA Reimbursement for Meals and Snacks Served
January	452	2,031	150,621	4,341	14,162	169,124	$164,197
February	466	2,412	164,453	5,261	14,497	184,211	178,148
March	469	2,580	189,879	7,495	14,169	211,544	206,542
April	471	2,216	157,841	6,221	12,936	176,998	173,620
May	480	2,561	187,633	6,795	16,102	210,529	204,799
June	470	2,490	189,298	7,322	14,725	211,344	213,062
July	472	2,094	154,719	7,591	21,820	184,130	183,804
August	480	2,508	172,194	9,073	25,963	207,230	199,693
September	477	2,310	150,740	7,577	23,387	181,704	173,466
October	477	2,443	164,876	10,774	23,658	199,309	191,839
November	486	2,404	158,136	10,706	22,251	191,093	184,799
December	486	2,067	143,467	10,926	18,808	173,202	170,651

Table 2: Meal/Snack Reimbursement Rates For Day Care Centers

Meal Type	Free	Reduced-price	Paid
Breakfast	$1.09	$0.79	$0.21
Lunch or Supper	1.98	1.58	0.19
Snack	0.54	0.27	0.05

Table 3: Meal/Snack Reimbursement Rates for Day Care Homes

Meal Type	Tier I	Tier II
Breakfast	$0.92	$0.34
Lunch or Supper	1.69	1.02
Snack	0.50	0.13

Table 4: Sponsor Administrative Payment Rate

Number of Homes	Rate
1 - 50	$78
51 - 200	59
201 - 1,000	46
Each One Over 1,000	41

for free and reduced-price school meals also receive higher rates of reimbursement. FY2000 reimbursement rates for homes are shown in Table 3.

Sponsoring organizations receive a monthly administrative payment for each client home from the state. The schedule for such payments for FY2000 is shown in Table 4.

The sponsor fee for working with day care centers is determined by the sponsor. QCI charges each center 10% of its monthly reimbursement amount.

QCI is located in Riverton, population 150,000, and one of the fastest growing metropolitan areas in North Carolina. With a growing number of manufacturing plants relocating to the area and a mushrooming tourist industry, the unemployment rate is low relative to other parts of the state and the demand for day care is increasing. QCI currently employs 22 full-time and part-time workers. The owner, Kate Carson, is a former public school teacher who started the business 15 years ago with a vision to improve the quality of child nutrition. Her unwavering focus on providing prompt and effective service to homes and centers became known throughout the network of providers and fostered a steady growth of loyal clients. Kate is an energetic and creative entrepreneur. She is motivated by the challenge to improve child nutrition and child care, but at the same time runs her business from the bottom line. She spends one or two weeks out of the month at QCI and the remainder on the road visiting either client homes or centers.

In 1997, Kate organized QCI into three departments: Homes, Centers and Tutoring. Each department was headed by a salaried employee. The Homes department was managed by Betty Taylor. Betty spent a number of years as a public school teacher, but left teaching for a less stressful job. One of the selling points used by Kate when she recruits is the flexibility of hours, both when to work and how many hours to work. Most of the employees at QCI were paid by the hour and worked there because of that flexibility of schedules. Betty began as a part-time employee and quickly moved to full-time to take on the responsibilities of department manager. Besides Betty, there were six others who were involved in training, reviews and administering day care homes.

Terry Mintz managed the Centers department. Terry taught elementary school for a few years before deciding that teaching was not for her. She tried several jobs before finding QCI. Kate convinced Terry that QCI was a growing company and that there would be expanding opportunities for her. Kate had six employees who were involved with Centers activities and administration.

Janice Carter was responsible for Tutoring. Janice was a student at the local university and worked half-time in the afternoons overseeing the tutoring activities. QCI serves as a broker and connects public school teachers with children who need tutoring services. In the early years, QCI depended heavily upon tutoring services – and still offers those services – but the business has grown primarily due to its role as a sponsor in the CACFP.

To comply with CACFP administrative requirements, a sponsor must collect detailed data on each home and center, the children enrolled in the homes and centers, and on the number and content of the meals and snacks served each day for each child claimed by a provider. In early 1997, QCI required its providers to complete daily entries on a mimeographed form called a menu sheet showing by child what was served and when. Meal contents were evaluated and reimbursement was made only for those meals that met nutritional requirements.

During the first week of each month, all of QCI's employees gathered at the company's office and evaluated the menu sheets as they arrived by mail and FAX. The state required all claims to be submitted by the 8th of the month in order to be reimbursed during that month. For the daycare homes alone, QCI processed close to 1,500 menu sheets by hand. Employees stayed into the night and spent weekends on the task, running up overtime. And time spent processing menu sheets represented an opportunity loss of nearly 25% in consulting time.

Processing a menu manually involved visually checking entries on the top half of the menu sheet where providers write the quantities and types of food served at each meal. If nutritional requirements were not met, the meal was disallowed. The bottom half of a menu sheet showed a seven-day attendance record for up to a dozen children. The attendance checks were tallied both by child and by meal and the sums verified. Certain meal and snack combinations were not authorized and had to be discovered by visual inspection.

After completing the assessment of the individual menu sheets, the results were entered into a spreadsheet which was used to produce totals. The spreadsheet applied the appropriate rates and produced reimbursement amounts. Kate would then key the reimbursement amounts into an accounting program to print reimbursement checks. NSS reimbursed QCI for payments made to providers.

In January of 1997, a recount of meals on a random sample of menu sheets revealed at least one error on 30% of the sheets. Despite a conscientious effort by the staff, human information processing was error prone. While the dollar value of errors was small, the frequency was noted by the Kate's auditors and QCI was urged to improve its menu assessment process. At that time, NSS processed claims submitted by sponsors using a combination of manual checking, spreadsheets and a centralized data processing system that supported multiple agencies in the state government.

Kate knew that if the company was to grow, it would need to find a way to handle an increased paperwork load with a lower error rate. She had relied on hiring additional staff to handle growth – usually one more full-time equivalent employee per 40 homes or centers. But the introduction of tiering in 1997 produced an increased volume of paperwork for the same number of clients. Kate concluded that additional staff alone was not the answer.

QCI used three desktop computers, all pre-owned Macs that had been donated by a local manufacturer. Software included spreadsheets and a popular small business accounting program to write checks and keep up with the bank account. None of the employees had significant computer experience. Kate explored the availability of computer programs to support CACFP sponsors. She discovered several, including one called MenuMinder that was being used by another sponsor about QCI's size.

MenuMinder used fairly costly OMR technology like that used in the school system for scanning grade sheets. After checking into the details of the system, however, Kate felt that the paperwork required by the system was too complicated for her providers. Her initial impressions were reinforced when she was told by two new clients that they changed sponsors because of the complicated forms used by MenuMinder.

Kate had only been using a computer and spreadsheet software for two years. She liked the fact that she could manage QCI's finances with just a spreadsheet and a checkbook program. She was concerned about losing control if she moved more of her business processes to the computer. And she wondered how her employees would react. After all, processing the claims was a time of great social interaction, and there was a high level of satisfaction associated with taking on and overcoming the mountain of paperwork as a team.

In a January meeting with her accountant, Kate mentioned her concerns. After listening to Kate describe the problems of errors and increasing paperwork, her accountant suggested that she contact a colleague of his in the MIS department at the university.

CASE DESCRIPTION

A few days after her accountant's suggestion, Kate met with Tom Davis, a professor of MIS at the local university. It happened to be during the first week of February when menu sheets were being processed and the entire staff was on hand. Piles of file folders and papers covered all surfaces and the small offices were abuzz. QCI's rented space in an office condominium was around 1,000 square feet, divided into four small offices and a reception area. Each of the offices had several desks and chairs and the staff was working elbow to elbow. One of the offices was also used for storage of surplus food from the food bank that was delivered to providers each month.

In that first meeting, Kate described her business in detail. Tom noted what seemed to him to be key symptoms: lots of transactions; manual processing; high error rates; expected increased workload; variable work schedules; non-standard forms and so on. To him, it was a case of a company that had outgrown the convenience and flexibility of manual processes. The number of customers had increased to the level where dividing the work was causing communication and consistency problems to mushroom. The task of combining lots of different human information processors into a workable network was proving to be too complex.

Over the next several months, Tom visited QCI frequently, talked with members of the staff and observed their activities. During those visits, he noticed a mixture of reactions to his presence: on one hand, he sensed a feeling of hope that something could be done to reduce the tedious manual processing; on the other hand, he sensed their uncertainty.

Four months after their initial meeting, Tom reported to Kate that he believed the staff was certainly ready for change and most likely capable of adapting to new processes involving information technology. He and Kate discussed the options and settled on a conservative approach: since the processes were different enough between departments, one department would be chosen as the trailblazer. It would be the Homes department.

Phase I

Tom was immediately faced with the "make or buy" decision. He spent several weeks digging out information on available software designed to support CACFP sponsors. While there were several packages available, they were either simple extensions of spreadsheet applications and still too dependent on manual counting, or they required the purchase of specialized scanners and the use of complex forms.

Tom recommended to Kate that they build their own system around a database using inexpensive image scanners. Building their own system would take longer, but it would give her some control over how much and in what way her business processes would have to change. Kate agreed, but to Tom's surprise, she resisted the idea of a database environment. Tom was to build the system around a spreadsheet. It was a structure that Kate understood and could work with if she needed to. In a follow-up meeting with her staff, she announced that Tom would be building a new system for homes that would make the home claim process much simpler. They were to cooperate with him and provide whatever information and help he needed. The goal was to have a prototype of the system up and running by August.

Table 5 (see Appendix) summarizes the Phase I changes that Tom implemented in the system for processing menu sheets for daycare homes. At the core of the solution was the addition of scanning and laser printing capabilities. The menu sheet shown in Figure 1 presents space for writing meal contents and an array of option bubbles for marking meals served to each child. The basic structure of the menu sheet remained the same in an effort to ease the transition by providers to the new form.

Under the old process, generic menu sheets were printed by a local print shop and provider information was filled in by the providers themselves. With the new system, a laser printer printed the menu sheets and included bar-coded and printed information on each provider at the same time. Completed sheets were scanned and computer-edited for unauthorized meals and summary reports were printed. Third-party software that supported inexpensive image scanners was used to print and scan the menus.

A file of reimbursement amounts and associated data was generated in QIF format for import into Quicken for updating checking account records. Figure 2, below, shows the initial hardware configuration.

Software included a spreadsheet for the master file, scanner software for printing and labeling menu sheets and scanning completed sheets, word processor for quick bar-code labels, file transfer software, anti-virus software, an editor to process scanned data and produce summary data, and accounting software for checkbook maintenance and check printing.

Figure 1: The Menu Sheet

Figure 2: Hardware Configuration
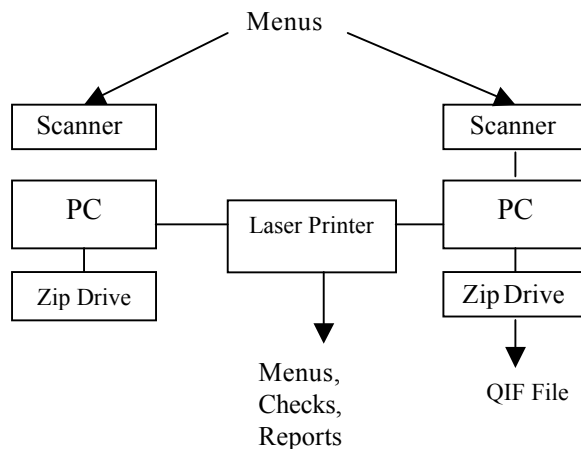
The initial system was introduced on schedule and was run parallel to the old manual processes. It was quickly recognized that even the new system was dependent to some extent on the accuracy of manual processes. With the old manual system, much of the inconsistency among forms received from providers was unimportant; the human information processors have great visual filters. Forms that were completed with various colors of ink and pencil–or were folded, spindled, and mutilated– could still be processed by people.

But, the scanner sheets had to be filled in with greater care and consistency. What at first was thought to be a major obstacle—i.e., training harried daycare providers to exercise more care with their paperwork — turned out to be quite manageable. The scan form was designed to look like the old manual form. To the surprise of the company, most of the providers embraced the new form with real enthusiasm — many expressed excitement over being a part of a system which used computers.

In the first two monthly cycles with the new form, there were still staples, folds, incomplete erasures, lineouts, and other problems that interfered with accurate scans. In addition, software and hardware adjustments were made to improve scanner speed and reliability. By the third cycle, most of the providers had adopted new habits and submitted their forms with clean and accurate markings and in good physical condition. Scanning accuracy improved sharply. After six months, scanning errors resulting from form condition and form preparation errors were virtually eliminated.

Nutritional requirements were still checked visually and any obvious problems with the forms were corrected before scanning. Once the forms were scanned, an editor program allowed visual verification. After several cycles, it was obvious that the scanner and scanner software was accurately interpreting the forms, so complete visual editing of bubble patterns was replaced with sampling.

During the scanning process, form images were verified by the software to resolve ambiguities caused by variations in mark densities and stray marks. Image-editing software was developed for visual verification of the scanned images to confirm that the scanner sees what it is supposed to see.

Line-editing software then checked meal patterns on each of the roughly 20,000 lines. Those found to be in conflict with the contract or the law were displayed for editing. When edits were complete, the meals were tallied and a detailed claim report was printed. In addition, the reimbursement amounts were automatically combined with information pulled from the master spreadsheet file to produce a Quicken import file to be used for writing the reimbursement checks. The editors also generated log files for changes made to the scanned data.

The positive effects of the system on the company were many. At the top of the list was employee morale: the morale of the employees jumped immediately when a large part of the stressful manual checking process disappeared. Night work and overtime work was eliminated for most of the staff. The error rate dropped from around 30% to less than 1%. After several monthly cycles, the company began to receive calls from daycare providers who wished to change from another sponsor to QCI. Several said they wished to change sponsors because of QCI's simplified paperwork.

Phase II

Once she saw how handily the system disposed of a huge chunk of their most taxing work, Kate began to wonder about other possibilities. The prototype system delivered a file to her which she imported into her Quicken program for printing checks. She wondered if there was a better way to get the checks printed. Betty wondered if there was a way to get various lists out of the system that the staff could use on their routes. Someone mentioned that it would be nice if they could get rosters of kids. Someone else mentioned that several sponsors in Texas were using direct deposit for their providers.

In February of 1998, a year after his first meeting with Kate, Tom had completed his initial task. Kate began talking about the real heart of the business – Centers. Tom knew he would need some help. Silky Traynham was a senior IS major in Tom's Visual Basic programming class and was anxious to get some practical experience before graduating. She was captain of the girls' volleyball team and

maintained a dean's list GPA. She was bright, enthusiastic and aggressive — a natural candidate to introduce to Kate along with the suggestion that QCI could benefit from an internship relationship with the university. Kate and Silky hit it off immediately.

Silky started her internship working for Betty. Her initial tasks included data entry, some training of other staff in the use of the computers and developing a newsletter. It was soon evident that Silky was not challenged, and worse, that Betty felt threatened. After one month into the internship, Betty was actively reducing Silky's interactions with other staff and limiting her assignments to manual tasks such as addressing envelopes and emptying trash cans. Betty's relationships with other staff began to deteriorate and she soon became isolated from them. The staff liked Silky and relied upon her for help with the new systems. At the end of two months with Silky as an intern, Betty abruptly stopped coming to work. She notified Kate by telephone that she was quitting and there was no further communication between Betty and the staff.

Kate was very upset over Betty's departure. She made several attempts to contact Betty in an effort to persuade her to return. Betty refused to take phone calls and her husband apologized as he hung up the telephone. It began to look like the computer-related changes were going to be a catalyst for other changes that Kate could not anticipate. As a possible short-term solution, Kate approached Silky with the idea of staying on for a while after she graduated. To Kate's surprise, Silky announced that she was enrolling in the university's evening MBA program and that she would be pleased to continue on as a full-time employee. Silky understood the technology and was working with Tom on extending the system's capabilities, but she didn't know enough about the business to manage the Homes department. Kate decided that Silky would be in charge of all things related to the computer and the "new systems," and would report to her and work directly with Tom on systems projects.

Brooke Sneeden was moved in to the Homes department manager's job. Brooke was a very pleasant, detail-oriented professional who had also been a public school teacher. She had left the classroom to raise her family and when the last child left home, she re-entered the job market. While working for QCI on a part-time basis, she quickly impressed Kate with her skills in human relations. All of the staff knew Brooke as an quiet, optimistic, people person – she was non-confrontational, yet persuasive. She never had a negative thing to say about anyone or any situation. She and Silky worked well together. Brooke deferred to Silky on technology questions and Silky deferred to Brooke on business issues.

Over the next year, Tom and Silky extended the prototype system to include check-writing (using third-party software), and direct deposit (using bank-provided software). When the direct-deposit feature was added, the decision was made to convert the master file from a spreadsheet format to a delimited text format. Kate continued to resist the idea of a database.

Besides a flurry of additional reports, several major functions were added to the system. The major addition was a module used to keep track of enrolled children. The day care homes had a total enrollment of around 9,000 children. There was no mandate from NSS to track children at that time, but the homes were required to submit information on children in order to determine the tier status for both the home and the child. Tom set up an interface for entering data on children and demonstrated it to Brooke and Kate. The initial reaction was mixed and the module was left unused. But not for long.

In early 1999, the USDA Office of the Inspector General (OIG) launched a nationwide investigation of the CACFP after a whistle-blower in California complained about problems in a sponsor organization. The investigation involved some 3,200 unannounced visits to day care homes and centers on the program. North Carolina was included in the investigation, and QCI was chosen for review because of its size – it is one of the largest sponsors in the state. A team of investigators introduced themselves at a selection of QCI's homes and centers across the state at the same time that a team of auditors arrived at QCI's offices. Information collected from the various sites was funneled to the team at QCI and a two-week detailed review of records was undertaken. Except for a few normal

errors in record-keeping or reporting, QCI was given a clean bill of health and privately praised by the auditors for the integrity of their systems.

But the larger picture was not so bright. Inspector General Roger Viadero reported widespread fraud and abuse in the program. In some states, sponsors were found that routinely overstated the number of meals served by its providers. In some cases, claims were made for nonexistent children in fictitious day care homes.   In the testimony of Thomas A. Schatz, President, Citizens Against Government Waste, before the Senate Subcommittee on Research, Nutrition, and General Legislation on September 27, 2000, it was noted that as a result of the OIG efforts, "CACFP officials have terminated 26 sponsors receiving more than $46 million annually in food and administrative funds. Of the 60 individuals charged with crimes through CACFP, 45 have been found guilty and 37 sentenced. In one particular case, the president of a Michigan day care center was sentenced to nine years in prison followed by three years of supervised release. The man was ordered to pay $13.5 million in restitution, a $10 million fine and a special assessment of more than $3,000."

In General Viadero's judgment, there were basic flaws in the structure of the administration of the program that permitted sponsors to engage in such activities as money-laundering, embezzlement, forgery and extortion. Some sponsors charged fees as high as 30% for adminis-trative services. Others required kickbacks from homes and centers that participated in schemes to fatten their reimbursement checks.

As a result of the findings by the OIG, the states began major restructuring in their processes and procedures associated with the CACFP. In North Carolina, key personnel changes at NSS led to significant additional reporting requirements that were aimed at closing the loopholes in the program. Changes in the state's administrative requirements that went along with adjusting to revised USDA expectations were met with apprehension by sponsors. For some sponsors, the work required to process the claims under the new procedures was simply too much to accomplish manually and they balked at the prospect of computerizing. Those sponsors chose to drop out of the program. Many of their clients applied to QCI for help. Almost overnight, QCI was faced with the specter of demand increasing more rapidly than their ability to meet it.

One of the new requirements called for tracking children in the homes more closely. It soon became evident that checking a child's economic status by referring to a completed paper form was taking too much time and was too error-prone. When asked if the computer could help, Tom and Silky reintroduced the interface developed earlier and it was readily embraced.

After a year as the computer support person and close to completing her MBA, Silky announced that she would be taking a job with a local software company. During that year, QCI had added several more computers and printers, and the Homes staff had become dependent upon the technology for most of the day-to-day administrative tasks. She agreed to stay in touch for a month or so to enable a transition. Kate and Tom were both disappointed and concerned about finding a replacement. Kate knew that Silky had doubled her salary by moving and that she would be in a much more technical environment where she belonged. Kate wanted another Silky, but she knew that she couldn't compete in salary terms with technology companies for MIS graduates, especially one with an MBA.

As if it were predestined, two weeks before Silky was scheduled to leave, Phyllis Dean walked in to Tom's office at the university. She was going back to school after a divorce and would be studying information systems. She had experience working with computers that included the Microsoft Office suite, check-writing software, direct-deposit software, office networks, and database. She had been office manager for a large real estate firm and wanted to get into the IS field. When Phyllis said she needed to find part-time work to help pay for her school, Tom decided to talk with Kate. Kate was ready to try anyone who had experience with computers. And so Phyllis joined QCI.

The next two months at QCI were memorable. Phyllis moved in to Silky's position with a high level of self-confidence. As Silky explained the ins and outs of the QCI setup, Phyllis seem detached and uninterested. She had done all of that before. In fact, she pointed out, she had used database and networking in her last job — certainly more sophisticated than what QCI had in place.

When Phyllis ran her first set of menus at the beginning of the month, it became apparent that things would be different with her. Instead of the friendly and cooperative attitude they were used to with Silky, the staff – including Brooke–was greeted by a tense and irritable person who preferred to be left alone to do her work. Almost immediately, the staff deferred to the new computer person. They stepped back and watched as she disposed of problems using assumptions based on experience from her previous jobs. Within a few days after the checks were mailed to the providers, the telephone began ringing off the hook. Editing decisions made by Phyllis during the scanning process were not based on QCI policy or on NSS regulations. They were arbitrary in many cases and incorrect in most. Silky had left a manual describing the processes in detail. At many points in those processes, decisions were called for from someone with extensive knowledge of the providers and the program. That someone was not interested in helping Phyllis.

When questioned by Kate and Brooke about how so many errors could occur, Phyllis was contrite and attributed her attitude and inattention to detail to her personal situation. She promised to do better. Unfortunately, the following month's results were not much better. That month a large number of the direct deposit transactions were incorrect – an old file had been used. Kate called Tom to inform him that she was going to fire Phyllis.

QCI was back in the situation of not having a lead technical person. After a few weeks worrying about how to proceed, Kate and Tom reached the same conclusion: someone inside should be trained in IS. Looking down the road toward future development, Kate saw developing a system for the Centers department as the logical next step. Tom agreed. And the logical person to involve in the technology was Terry Mintz, the manager of the Centers department. Terry had quickly learned the changes in the Homes systems and had been thinking about how those same kinds of applications might be used in the Centers claim process.

For the next several months, Kate and Tom met during the first week of each month to discuss the directions QCI should be taking. After assessing all that had occurred with the Homes department and how dependent they were on easy access and manipulation of their data, Kate finally agreed that it was time to develop a Centers system and that a database approach should be used. Tom recommended using Access. To help speed the development process, he recommended bringing another MIS faculty member into the project. Kate agreed and Jerry Thorpe joined the team.

Kate reorganized QCI and attached the technology responsibility to Terry's job description. Terry was to work with Brooke where Homes issues were involved and would work with Tom and Jerry on the development of a Centers system. Tom would work with Terry to develop her technology skills. Jerry would work on the centers database and processing the Centers claim. To compensate Terry for the additional responsibility, Kate raised Terry's salary by 30% to bring it in line with what she had been paying Silky. Both Kate and Tom were hopeful that Terry would grow into the job. At Tom's suggestion, Terry began a series of computer-based training modules on database. She took books home and studied when her two children were in bed. It became apparent that Terry was the right choice for the job.

In a recent meeting, Tom and Jerry outlined a strategic direction for QCI to Kate and suggested that a good first step would be to improve the IT infrastructure for the whole of QCI by moving to a local area network. As she was considering the suggestion, she pointed out that NSS was moving toward the Web and that they anticipated electronic document exchange before too long. Kate had an Internet service provider at home and occasionally used her personal email to communicate with Tom, but she did not see it as in integral part of her business. Tom had been encouraging Kate to get an ISP for QCI and to consider a Web site for QCI as well. Kate approved the LAN but was not quite ready for the Web.

After a month in her new role, Terry called Tom. She was wondering if they had done the right thing. The rest of the staff didn't seem to accept her in her new role. Terry felt that the others didn't think she knew any more about computers than they did. They weren't asking for help in solving their computer-related problems. Kate was expecting Terry to do the job, but the others weren't helping her.

CURRENT CHALLENGES/PROBLEMS FACING THE ORGANIZATION

Pending State Level Changes

In the summer of 2000, the NSS held the first of several workshops for its sponsors to discuss the contents of a recently-issued USDA document entitled "Management Improvement Guidance: Family Day Care Home Sponsors." The document specifies a set of standards for each of the three key programmatic areas and spells out expected performance for ongoing sponsoring organizations and their state agencies. It includes outcome-based performance measures and performance improvement plans related to the standards. The 20 sponsor standards deal with the areas of organizational management, financial management and oversight of provider operations. QCI must review its processes in light of the new federal standards. A major concern is the outcome of the review will be a recommendation for major changes to QCI's information systems. QCI has just undergone the re-engineering of key business processes and was starting to think in terms of continuous improvement. The specter of yet another re-engineering effort and its impact on QCI's staff, not to mention the cost, is certainly changing the way management thinks about the business.

In a recent letter, NSS let it be known that there would be additional workshops offered in an effort to bring sponsors into compliance with USDA expectations regarding CACFP, and that there would be significant policy and procedure changes over the next year. When asked about the content and scheduling of expected changes, the NSS reply is usually terse and noncommittal, leaving QCI and other sponsors to guess the future. Occasionally, word leaks out of NSS about impending changes. Up to now, where its own information systems needs were involved, NSS has had to rely upon a centralized information processing system used by all of the other state government agencies. During the last audit by NSS, one of the auditors remarked that QCI was ahead of NSS when it came to information system implementation. Shortly after that visit, it was leaked that NSS is looking at automating some of its systems quickly by purchasing an existing system that is in use in several other states. There was mention of a requirement for submitting claims electronically. The possibility of NSS improving its systems raises a new issue. So far, QCI's systems have helped respond to requests from NSS in a timely manner. Better systems at NSS will change that balance — NSS will be able to handle responses more quickly which will probably lead to more frequent requests and possibly more complicated requests. QCI's management finds the question of hiring a full-time IS professional back on the table.

Pending Federal Level Changes

At the federal level, there is a deliberate effort underway to develop more responsive information systems to support childcare-related programs, including CACFP. A recent initiative by the Child Care Bureau of the U.S. Department of Health and Human Services Administration for Children and Families led to the development of a document called CEE-SAW – the ChildCare Electronic Environment: a System Automation Worktool. The document is a master blueprint for child care information systems and provides detailed functional requirements, process models and data models. It is a public document that the Child Care Bureau hopes will lead to the development of better information systems at all levels. QCI knows that there is pressure on NSS from the USDA and that NSS must respond or lose federal funds.

Strategic Planning Challenges

With pressure on the child care industry being exerted from both the federal and state levels, the handwriting is on the wall: in order to survive, a sponsor must not only develop information systems that meet today's requirements, but those systems must be flexible enough to accommodate promised changes that are in the works behind the doors of the oversight agencies. It seemed obvious to QCI's

management and Tom that there could be a more deliberate effort to coordinate the adoption of information technology by the industry. Tom recalled a similar scenario a decade and a half earlier when the shipping industry was struggling to implement information technology. The federal oversight agency in that scenario was the U.S. Customs. With the final say as to what can enter and leave the United States through her ports, the Commissioner of U.S. Customs was able to motivate state ports authorities, brokers, forwarders and carriers to launch industry-wide change with a simple statement: "Automate or perish!" Tom mused that the discordant rates of IT adoption in the shipping industry were tuned by threat. Given the size of the budget for programs such as CACFP and the renewed political interest in child care during the recent elections, he wondered who might be eyeing the tuning fork in Washington.

QCI's management thinks it's important to understand the big picture. They worry about what the oversight agencies have in store for sponsors; about how the staff will respond to mandated changes; and they worry about providing quality administrative service to their providers. But, even though QCI is one of the largest sponsors, they feel unable to influence what at times seems to be a random evolution of IT implementation in the industry. While QCI enjoys an apparent competitive advantage among sponsors because of its systems, they also realize that there is a risk of those systems becoming obsolete by mandate. What is needed, they think, is a planned and coordinated evolution of systems. Sponsors in other states have organized into associations for the purpose of exchanging information and lobbying. Indeed, there is a national sponsors' association. But, there is no sponsors' association in North Carolina. Feeling a bit frustrated, Kate finds herself thinking about how her decision of a few years ago to use a scanner has somehow led her to the point of considering the impact of politics on QCI's adoption of information technologies.

FURTHER READING

Child Care Bulletin on using technology in child care (1996): http://ericps.ed.uiuc.edu/nccic/ccb/ccb-mj96/ccb-mj96.html.

Child Care Bureau's Child Care Automation Resource Center: http://www.acf.dhhs.gov/programs/ccb/ta/ccarc/index.htm.

Links to licensing requirements by state for day care providers: http://nrc.uchsc.edu/states.html.

National Child Care Information Center (NCCIC) online database for child care statistics and demographics: http://nautilus.outreach.uiuc.edu/eric/search.asp#StateProfile.

National Network on Child Care: http://www.nncc.org/states/nc.html.

NCCIC list of links related to child care: http://nccic.org/links.html.

North Carolina administration of CACFP: http://wch.dhhs.state.nc.us/nss/nss2/index1.htm.

North Carolina Division of Child Development: http://www.dhhs.state.nc.us/dcd/.

Source for statistical data on day care: 2000 Kids Kount: http://www.aecf.org/.

USDA CACFP page with links to statistics, management guidelines, audits, etc.: http://www.fns.usda.gov/cnd/Care/CACFP/cacfphome.htm.

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BIOGRAPHICAL SKETCHES

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APPENDIX

Table 5: Quality Care, Inc. Summary Of Homes System Upgrade–Phase 1

	Old	New	Benefit	Cost
Homes Claim Processing Form Generation	Print shop. Blank forms filled in by providers	Laser printer. ID info filled in by computer/printer.	Timely. Better info for visits by reviewers. Cost savings.	Computer: $2,000 Printer: 2,500 Software: 1,500
Form Editing	Manual. Check nutrition requirements. Count meals and get subtotals.	Computer. Check nutrition req'ts by hand. Computer edits for errors in meal patterns.	Almost total elimination of pattern errors.	Scanner: $2,500 Software: 5,000
Form Tallying Summary Reports	Manual entry of subtotals into spreadsheet. Sums from spreadsheet typed into report.	Computer tallies meals and produces summary claim.	Almost total elimination of tally errors. Sharp reduction in staff time.	(Covered above)
Amendments	Manual preparation of amended reports.	Make changes to stored data and re-run tally and reporting system.	Accuracy and quick turnaround.	(Covered above)
Check Writing	Manual entry into Quicken.	Import into Quicken.	Reduced time and data entry errors. Auto update of accounts.	(Covered above)
Data Security	Save menu sheets and spreadsheet sums.	Save menu sheets and reports on disk.	Easy off-site backups maintained on Zip disk.	Hardware: $150

Table 6: Child and Adult Care Food Program: Average Daily Attendance Data as of February 28, 2000

State / Territory	FY 1995	FY 1996	FY 1997	FY 1998	Preliminary FY 1999
ALABAMA	33,903	34,786	36,209	37,129	37,254
ALASKA	6,898	7,240	6,813	7,036	9,385
ARIZONA	39,021	39,504	43,628	46,636	52,456
ARKANSAS	20,381	20,654	23,663	23,096	24,707
CALIFORNIA	262,700	272,240	282,893	283,344	286,648
COLORADO	41,622	38,780	39,978	42,686	43,177
CONNECTICUT	20,375	20,404	20,544	20,485	20,949
DELAWARE	11,886	11,870	12,693	12,805	12,421
DISTRICT OF COL	4,957	4,317	4,595	4,137	3,570
FLORIDA	71,009	75,114	83,656	99,954	97,445
GEORGIA	66,870	79,192	86,929	95,373	98,703
GUAM	574	541	659	507	326
HAWAII	25,603	9,076	9,128	9,251	8,908
IDAHO	6,570	6,476	6,545	6,399	6,786
ILLINOIS	75,449	77,168	82,199	96,773	98,094
INDIANA	40,917	40,660	44,155	45,889	48,003
IOWA	28,525	28,058	27,931	27,124	27,818
KANSAS	56,511	54,709	53,985	54,223	54,919
KENTUCKY	36,995	38,147	39,550	41,661	45,605
LOUISIANA	60,910	58,944	55,805	54,706	55,165
MAINE	14,031	14,277	15,318	15,338	15,003
MARYLAND	42,974	52,330	53,439	51,113	50,723
MASSACHUSETTS	50,207	50,016	51,139	54,869	57,561
MICHIGAN	69,287	71,172	74,536	71,192	73,497
MINNESOTA	96,751	94,648	94,866	93,594	95,046
MISSISSIPPI	29,437	26,896	27,084	27,317	26,937
MISSOURI	42,869	42,419	44,008	45,774	47,560
MONTANA	12,713	13,832	13,002	13,875	14,164
NEBRASKA	39,298	38,813	39,143	38,533	38,413
NEVADA	4,803	4,838	5,250	4,964	5,473
NEW HAMPSHIRE	6,814	7,109	6,762	6,765	6,806
NEW JERSEY	44,428	43,623	38,243	44,102	50,082
NEW MEXICO	45,374	42,383	44,973	43,104	42,898
NEW YORK	160,393	168,476	181,938	230,772	257,161
NORTH CAROLINA	60,670	103,182	99,763	97,511	114,399
NORTH DAKOTA	18,979	18,452	17,975	17,703	17,458
OHIO	82,804	79,453	76,250	80,436	82,422
OKLAHOMA	42,640	43,641	45,467	45,881	43,325
OREGON	37,529	36,697	36,490	36,041	35,290
PENNSYLVANIA	77,186	63,528	64,950	69,226	69,719
PUERTO RICO	8,538	29,668	21,547	22,745	22,679
RHODE ISLAND	7,694	6,820	6,899	7,739	9,100
SOUTH CAROLINA	24,556	26,043	27,467	28,591	30,915
SOUTH DAKOTA	12,549	12,255	12,117	11,322	11,159
TENNESSEE	36,601	37,337	37,970	41,863	43,064
TEXAS	158,529	154,447	156,950	161,481	172,735
UTAH	39,837	40,464	41,051	37,256	35,984
VERMONT	8,830	9,018	8,679	7,426	7,823
VIRGIN ISLANDS	1,148	1,096	1,199	1,216	1,126
VIRGINIA	40,918	41,747	39,922	41,932	43,745
WASHINGTON	56,420	53,496	54,366	64,794	67,519
WEST VIRGINIA	10,497	10,238	11,920	16,312	15,930
WISCONSIN	49,397	50,763	51,887	52,549	54,323
WYOMING	7,853	8,135	7,504	8,020	8,543
TOTAL	2,354,225	2,415,186	2,471,627	2,600,561	2,700,912

Note: Average daily attendance data are reported for the last month of each quarter; annual averages are the sums divided by four. Unlike participation data in the National School Lunch and School Breakfast Programs, average daily attendance is not adjusted by an attendance factor. Data are subject to revision. (Source: U.S. Department of Agriculture)

Table 7: Child and Adult Care Food Program Data as of February 28, 2000

Fiscal Years	Total Participation Thous.	Meals Served				Free+RP of Total meals Percent	Total Costs Mil. $
		Homes	Centers	Adult	Total		
			Millions				
1969	23	—	8	—	8	78.2	1.3
1970	69	—	42	—	42	80.3	6.2
1971	154	—	81	—	81	83.5	13.4
1972	185	—	103	—	103	85.4	16.5
1973	216	—	118	—	118	87.1	20.0
1974	267	—	163	—	163	88.6	30.0
1975	375	—	224	—	224	87.6	51.0
1976	401	—	254	—	254	80.6	87.5
1977	483	19	292	—	311	82.6	124.6
1978	528	32	307	—	339	81.8	152.4
1979	598	54	327	—	382	79.8	189.6
1980	663	84	347	—	431	82.6	236.4
1981	778	168	379	—	547	91.0	339.7
1982	830	154	339	—	493	85.5	324.4
1983	920	178	358	—	536	84.4	355.8
1984	982	217	373	—	591	84.0	406.7
1985	1,043	253	387	—	640	83.7	452.1
1986	1,102	277	401	—	678	83.6	496.2
1987	1,186	309	416	—	725	83.2	547.7
1988	1,256	357	433	2	792	83.2	628.2
1989	1,367	414	448	4	866	83.5	697.0
1990	1,490	481	477	8	966	83.9	812.9
1991	1,642	543	509	11	1,063	84.5	945.1
1992	1,823	613	555	14	1,182	85.4	1,094.2
1993	1,977	668	613	17	1,298	85.4	1,225.2
1994	2,187	729	666	19	1,414	85.3	1,354.0
1995	2,354	766	721	22	1,508	85.2	1,464.1
1996	2,415	777	746	23	1,546	85.2	1,533.7
1997	2,472	775	770	26	1,572	85.3	1,571.7
1998	2,601	751	821	29	1,602	84.7	1,553.2
1999	2,701	743	863	32	1,638	84.3	1,619.4

Data are subject to revision.

1. FY 1969-75 data are for the year-roundcomponent of the Special Food Service Program.
2. Participation data represent average daily attendance with no adjustment for absenteeism. Data were collected monthly through FY 1983, and quarterly in subsequent years.
3. Total cost includes food service equipment assistance (eliminated after FY 1981) and sponsor administrative costs. Audit and startup costs are included from FY-1988 onward.

(Source: U.S. Department of Agriculture)