

More Than Just a Number

Massachusetts agency for the disabled improves client care through efficiency gains using barcode-reading technology

We've all seen them: Hollywood renditions of the stereotypical governmental agency. Ceiling fans slowly circle above huge rooms filled with desks, while the distant clack-clack of a typewriter documents a transaction in triplicate for all posterity. Archaic. Inefficient. Slow. Each person asking for help becomes just a number in a vast sea of paperwork. The clerks don't really know you, and they don't really care.

Fast forward to the 21st century, where today's reality paints a much brighter picture. The Massachusetts Department of Developmental Services (Mass DDS) takes care of people with mental disabilities who are wards of the state. Clients live in small groups in single-family homes distributed through various communities, attended by live-in nurses and other care providers. Services are highly personalized for each client by people who truly care about them and about their work.

In this environment, the clients benefit not only from modern medical knowledge and cultural support but also from leadership that embraces technology. In a recent example, the department found a way to utilize industrial barcoding equipment to expand care capacity by increasing operational efficiency.

The Challenge

Vincent "Vin" Provencher is the business manager for the Central/West region of the Mass DDS and is responsible for all functions of the department in his territory. In addition to caring for the clients themselves, his team coordinates everything a homeowner has to do for their residences, from plowing the driveways and mowing the lawns to maintaining the buildings at over 100 locations.

Vin and his team have been facing a major challenge. Since 2004, the department has been level funded, which means that the budget remains the same from year to year even though labor rates and the cost of materials go up with inflation. With 450 to 500 clients in the region, groceries alone have become a million-dollar line item. Without a change, the financial pressures would eventually start to impact client care – the core objective of the department.

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- ◆ Vin understands money. As a former financial officer for a large investment firm and an insurance company, he appreciates the impact of saved work time. “Since our funding doesn't go up, we have to find ways to improve efficiency in order to maintain excellent levels of care and service,” he says. “Every ten dollars we save [on operations costs] is another gallon of milk and pound of bacon that goes into a client's refrigerator.”

- ◆ There are two questions Vin asks himself frequently: what are the time wasters in our processes? How can we improve our procedures to reduce that waste? He didn't have to look far before settling on his most recent target: the department's asset management process.



A health worker helps a client into her home.



The Department of Developmental Services has been caring for clients for over 200 years, and this long history results in an extensive list of tangible assets. The department's asset database includes items dating back to the 1800s that were used in the old state hospital system.

A complete inventory of all 100 homes and 8 regional offices must be taken every year to keep track of the items owned by the department. In the past, an inventory specialist at regional headquarters would download each home's asset list from a database and send it to a caregiver at that location. The caregiver would go through the house comparing everything they saw to the list, marking items they couldn't find and jotting down descriptions of additional items not listed. Checking the asset inventory in each home took four or five hours of a caregiver's time.

This inventory checking method presented some challenges. Many DDS clients require care at all times of day and night, so nurses were constantly juggling providing care with counting assets. With frequent interruptions and distractions, errors were being made.

Additionally, some items in homes were going unnoticed during inventory checks and were not being captured in the database because health workers were unaware that the items met the criteria for being listed as an asset. Although the inventory specialists suspected that some asset lists were not comprehensive, they didn't have on-site visibility of their own to verify the accuracy and completeness of each location's records.

Data integrity was declining rapidly.

- ◆ Meanwhile, the asset database itself also had problems that led to further errors plus a lack of visibility to the information it contained. The asset tracking system began with paper logbooks in the 1830s that remained in use for 150 years until the data was
- ◆ migrated to Microsoft Excel® in the 1980s, then to Microsoft Access® in the 2000s. By the year 2014, there were almost 50,000 records in the database, including over 12,000 active items and three times as many inactive (out of service) ones.
- ◆ Over time, various people had been responsible for upkeep of the database. With each employee having their own style of data management, fields were populated
- ◆ inconsistently and key field names were changed. As a result, searches of the database did not always turn up the appropriate records. During the decades when Excel was in
- ◆ use, queries would sometimes fail completely because the database was too large. Duplicate records were being created when users couldn't find the record they were looking for. Since both Access and Excel allowed duplication of asset numbers, an item could still be listed twice and two different items could be assigned the same asset number. Data integrity was declining rapidly.

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The Solution

Vin researched alternatives for this process by brainstorming a list of industries facing challenges similar to his own, then finding out how organizations in those industries manage those issues. The research consistently pointed to barcoding as the technology of choice, paired with the appropriate software for managing the asset database. Barcoding is a highly efficient method of data collection that is easy to use, easy to integrate into existing equipment and easy for employees to adopt into their processes.

By a major stroke of luck, the department already had barcodes applied to its tangible assets. The rolls of labels that had been purchased over the years for their unique asset numbers happened to display each number in both numeral and barcode form. The stars had aligned.

Vin began his search for the ideal data collection equipment vendor with a combination of internet research and networking with his private sector business contacts. He quickly settled on Diamond Technologies as his partner for the project. "We talked to many potential vendors, but no one else impressed me like Diamond," says Vin. "Their technical services and support set them apart from the rest. Diamond was the only one who could use our existing database and migrate it into their software. The other guys said it couldn't be done."

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The Datalogic Lynx™ portable barcode terminal from Diamond Technologies

Paul Tesini, President of Diamond Technologies, helped Vin assess his options for hardware and software. “We agreed that portable barcode terminals were the best type of reader for his application because they offer easier implementation and more flexibility,” says Paul. Vin chose the [Datalogic Lynx™](#) model because it was small and lightweight for easy transport between locations. The units are easy to use and economically priced to suit his budget. For software, Paul recommended the [RedBeam® Asset Tracking](#) package from RedBeam, Inc.

With a green light for the project, the Diamond Technologies team set to work cleansing and reorganizing the Mass DDS asset database. This would have taken months for Vin’s staff to do themselves in addition to their regular duties, but Paul set dedicated people to the task and got the job done in just three weeks.

Vin recalls, “Paul’s team was awesome because they only needed a few phone calls to make that happen. They did it seamlessly without having to burden the customer, and they never complained about this tedious task even though I know it was a lot of work. That goes a long way in my book.”

When installation day came, everything was smooth sailing. Diamond Technologies engineers installed the new software on the DDS computers and imported their redesigned database. They conducted personalized, in-house training on use of the new equipment and software for the inventory specialists.

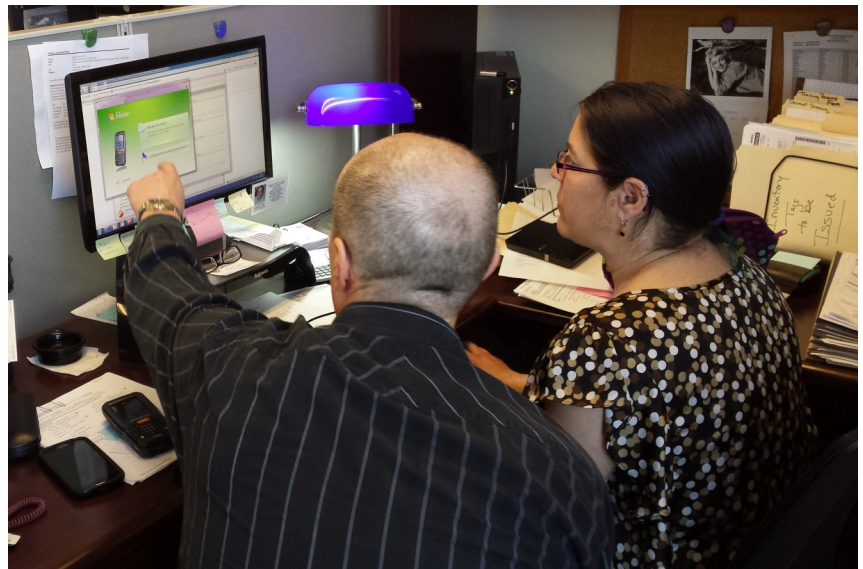
The Result

The most obvious result of the conversion is a large increase in employee efficiency. Instead of comparing equipment label numbers to a printed list, an employee walks from room to room scanning barcodes, reducing the time to check assets in a home from five hours to one. Nicole Watson, a purchaser and inventory specialist at the department’s Springfield headquarters, can now singlehandedly conduct the annual inventory of all 100 homes plus 8 area offices in the Central/West region. The shift in responsibilities offloads almost 500 hours of inventory work each year from the health workers across all homes – the equivalent of ¼ of a full-time employee.

Database maintenance has become more efficient as well. “The portable terminals are pretty cool,” says Nicole. “They have a Windows® operating system, so data file transfers are easy. The database management software has great features that make transactions quicker and is really easy to use - that saves me time.”

The efficiency boost gave the in-home staff more time to focus on their core objective: excellent client care. Residents now receive better service because their health providers are no longer splitting their time between care and inventory work. The increased capacity of the staff can also help the department comply with its level funding model in future years.

The new system and process offers other benefits as well, with the first being an improved allocation of labor. Client care and inventory work are now each being done by the most appropriate personnel, yielding a more consistent asset list result across locations and reducing training requirements for caregivers. A further benefit is enhanced employee satisfaction. As nurses, speech pathologists and social workers, the department’s care providers are much happier doing what they do best.



A Diamond Technologies engineer trains Mass DDS purchaser Nicole Watson on the use of RedBeam’s Asset Tracking software



Along with the increases in speed and efficiency came a reduction in human errors during data collection. Items are no longer being missed or miscounted due to distraction of care providers. The mobile terminal's software reliably matches each scanned label to an existing record, avoiding matches being missed by humans and subsequent creation of a duplicate record. Photographs taken by the scanner's built-in camera and saved in the database help workers to quickly find assets during a check, avoiding items being incorrectly marked as missing or out of service.

Results:

- *Better client care*
- *Increased employee efficiency*
- *Improved data accuracy*
- *Enhanced employee satisfaction*

A final benefit of the new system and process is ongoing improvement of data integrity, which is achieved in several ways. First, any scanned label number that is missing from the database is flagged at the time of scan. Details on that item can be entered on the spot by inventory personnel, a vast improvement over the previous process in which caregivers made handwritten notes on paper and faxed them in for interpretation and entry. Second, with a purchaser/inventory specialist conducting the location checks, additional items in the homes that qualify as assets are more likely to be identified. These items can be labeled and entered into the database on-site using the mobile terminal. Third and most importantly, RedBeam's Asset Tracking software does not allow duplication of asset numbers.

Summary

In the end, together the Mass DDS and Diamond Technologies achieved a project trifecta: quality results, quick turnaround and affordable pricing.

The project took only 10 weeks from green light to completed system installation and met the DDS budget requirements. The customer is delighted with their system's performance.

The Diamond engineers took care of everything, including testing existing barcodes to ensure readability, specifying and delivering the proper equipment and software for the system, installing and testing software on mobile terminals, installing software on client computers, renovating and importing the new database and training users.

The DDS is also very pleased with Diamond Technologies' pre- and post-sales support, which included periodic follow-up calls in the weeks after installation to check on how things were going and to answer any questions.

Finding the right technology partner for each project is crucial, even when the task seems straightforward. Excellent, expert service can make all the difference between a rough project experience and a great one.

Says Vin of his role at Mass DDS, "I love this job because it really helps people." For him, working with Diamond Technologies has made that job a whole lot easier.



Vin Provencher (left) and Paul Tesini with the oldest and newest in-service DDS assets: a grandfather clock from the early 1800s and today's Lynx mobile terminal

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