

THE CASE FOR IT INVESTMENT

While daunting upfront costs prevent many providers from embracing information technology, IT systems can prove well worth the investment.

DAN COBB

According to a recent American Health Care Association survey, 46 percent of skilled nursing facilities still document most of their work on paper, and only 1 percent report having fully computerized, paperless systems.

For many providers, the prospect of switching over to computerized systems appears to have more costs than benefits, including large capital outlays to get a system up and running.

But what if adopting information technology (IT) can produce a positive return on investment (ROI) that keeps on paying dividends? If such a business case could be made, perhaps long term care providers would re-evaluate their attitudes toward IT.

Expected Costs

Before one can expect an ROI, however, there must first be an investment. And indeed, there are costs—in both capital and time—that occur before, during, and after the actual purchase or lease of necessary long term care technology. In addition to software license fees and the acquisition of new hardware, it is important to note that other costs occur throughout the

process and must be considered when creating an IT budget.

An important consideration in the acquisition process is deciding between hosting the technology in-house or

acquiring a software-as-a-service provider (SaaS).

In the SaaS model, costs and expenses are paid monthly, whereas in most self-host situations the costs are incurred up front, coupled with annual maintenance.

In addition, in the SaaS model, ownership of the data center (and all the accompanying hardware and infrastructure) and responsibility for the data (backup, integrity, security) will lie with the SaaS provider.

Most long term care providers would like to know the cost of state-of-the-art IT, such as a comprehensive electronic health record. The answer is not simple, because actual costs will depend on a number of variables. (see table, page 42).

An additional variable to consider is the complexity of a provider's organization. For example, a continuing care

COST SUMMARY

Selection & pre-implementation costs

- Trade show attendance, periodical & Web search review, etc.
- Consultant assistance with selection process
- The Request for Information (RFI) & Request for Proposal (RFP) processes
- Selection committee time to research and evaluate product offerings
- Site visits to customer reference locations and vendor headquarters
- Legal fees for contract review

Acquisition costs

- Hardware (servers, workstations, storage, etc.)
- Software (license or usage fees for application and system software)
- Software training and installation
- Workflow redesign, training, and paper-electronic chart conversion
- Loss of productivity (while learning the new technology)
- Technical/network system support
- Other implementation costs (e.g., implementation management, testing and retesting systems, and interoperability costs)

Annual costs

- Software maintenance and support
- Software upgrades
- Hardware replacement
- Internal information systems/external information systems contractors
- HIT application service provider subscription costs
- Training of new staff
- Other ongoing costs (e.g., increased staffing costs)

Source: HealthMEDX

TECHNOLOGY IN HEALTH CARE

retirement community that combines skilled nursing, assisted living, independent living, home care, and rehabilitation may pay more per bed than an

assisted living chain due to the added complexity of the operation.

As mentioned earlier, these costs are really investments on which a provider

can expect a substantial return. In its simplest form, ROI is calculated by comparing costs to the expected benefits, then determining when the original and ongoing costs will be recouped. It is important to remember that all benefits are not quantifiable and may not have direct dollar amounts; nevertheless, they should be included in the ROI calculation.

While benefits can be classified in a number of ways, the following five categories are a good place to start.

- **Improved quality of care.** Quality metrics such as falls, pressure ulcers, and re-hospitalizations are all objective quality-of-care measurements that can be positively influenced and improved through advances in IT. For example, Erickson Retirement Communities recently automated its medication orders and administration and was able to reduce medication errors by 48 percent, according to the company.

- **Better productivity and efficiency.** The installation of IT, along with improved workflow, can lead to significant time savings, thus reducing labor costs. For example, Erickson's automation eliminated the time (including overtime) required to manually reconcile medications. Every minute of nursing time saved from administrative work can be devoted to resident care. In addition, Erickson was able to cut the costs associated with paper forms by \$10 per resident in the first year, the company said.

- **Bottom line impact.** Improved quality metrics can improve top-line revenue by helping facilities achieve better scores than their competitors on the Centers for Medicare & Medicaid Services' Nursing Home Compare.

Improved quality can also have a bottom line impact. For example, an injurious fall increases nursing facility costs by an average of \$5,325 per year, according to Hoffman, Bankes, Javed, and Selhat ("Decreasing the Incidence of Falls in Nursing Homes in a Cost-Conscious Environment: A Pilot

TECHNOLOGY COST VARIABLES

Size of business	For example, an independent nursing facility should expect to pay less than a chain. However, the chain likely will pay less per facility.
Level of functionality	For example, a full-featured EHR will generally cost more than more narrowly defined functionality, such as an MDS package.
Level of connectivity	Considerations include whether a wireless network must be installed or if a secure, high-speed connection to the Internet is necessary or in general, if the existing network will support the new technology.
Length of implementation	The extent of process re-engineering and the number of phases can add to the length of the implementation and, thus, to the cost.
Extent of user training	User training costs will vary depending on the ratio of classroom training, computer-based training, or online training sessions. <i>Source: HealthMEDX</i>

ROI CALCULATION AT A GLANCE

		Year 1	Year 2	Year 3
Costs	Selection & pre-implementation costs	\$5,000		
	Acquisition costs (6 additional workstations for EHR, along with process re-engineering time)	\$12,000		
	Implementation costs	\$36,000		
	SaaS / ASP fee (\$2,000 / month)	\$24,000	\$24,000	\$24,000
	SaaS Internet or network bandwidth costs (\$500 / month)	\$6,000	\$6,000	\$6,000
Benefits	Eliminate prior system annual maintenance fee	\$15,000	\$15,000	\$15,000
	Eliminate 1 injurious fall every quarter (\$5,325 per fall)	\$21,300	\$21,300	\$21,300
	Reduced form and paper costs (\$10 per resident per year)	\$1,000	\$1,000	\$1,000
	Reduced labor expense (2 FTEs, days per month @ \$30 / hour)	\$17,280	\$17,280	\$17,280
	Reduced interest expense from improved cash flow	\$6,000	\$6,000	\$6,000
Net return		(\$22,420)	\$30,580	\$30,580
Non-quantifiable benefits	Reduced medication errors; fewer survey deficiencies; and improved quality indicators, regulatory compliance, and staff development <i>Source: HealthMEDX</i>			

Study,” *Journal of the American Medical Association*). In a typical 100-bed nursing facility, there are 100 to 200 reported falls each year, which likely is a significant underestimate, the authors say. Automated falls management programs have shown success in reducing the prevalence of falls. With these statistics, a small reduction in falls can make a big impact on the bottom line.

■ **Business growth.** IT can help the top line as well as the bottom line. Many providers undercode resource utilization group scores because they do not have sufficient documentation to justify higher scores. Positive cash flow impacts have been recorded as well. For example, Minnesota Masonic Homes applied new IT to its billing process and was able to reduce “average days sales outstanding” by more than 25 percent and bad debts by 30 percent, the company recently said.

■ **Risk management.** On average, only 11 percent of nursing facility surveys are deficiency free, according to the Department of Health and Human Services’ Office of Inspector General. For the rest, many deficiencies can be avoided by the improved documentation and follow-up that IT provides. Higher quality also can reduce liability premiums.

Return On Investment

So how can all of these costs and benefits come together in a business case? On page 42 is a simplified calculation for the purchase of an integrated, core long term care software application, including census management, electronic health record, billing, and accounts receivable. Because of the cost variables, the following assumptions will be used.

■ The software is acquired using the

SaaS model—meaning that the license, maintenance, and data-center costs are paid monthly.

■ The purchasing provider is a single, 100-bed nursing facility.

■ All cost and benefit figures are fictitious but representative of what is available in today’s market.

With the estimates in the table on page 42, the total investment for a new application will be recovered in about 21 months. It should also be noted that other benefits are likely to occur, improving ROI even more. ■

DAN COBB is chief technology officer and co-founder of HealthMEDX.

For More Information

■ The author can be contacted at dan.cobb@healthmedx.com.