

LOOKING AHEAD



Following the lessons that technological history provides begets three concepts to follow when considering digital CCTV systems.

Education, forethought and prudence are necessary elements to making the right decision.

AT DIGITAL CCTV?

By Charlie R. Pierce

There is a world of electronic engineers, specification writers, manufacturers, distributors and salespeople out there who say the CCTV industry is in a position to go fully digital with recorded information.

In some cases, these people are right. The CCTV industry is definitely "in position" to go fully digital with recorded information. But it is not necessarily ready.

There are still a few pitfalls to digital recording that the end user, system designer and salesperson must be aware of. History provides valuable lessons to any person or company looking to completely invest in a new technology.

From history, we learn that education, forethought and prudence are most valuable when deciding whether to make a head-first jump into digital CCTV technology.

History Provides Technological Lessons

First, let's take a step back into history and learn some valuable lessons about jumping or being pushed into new technology. In the early 1980s, the banking industry, pressured by maintenance costs, security sales and new technology, made a sweeping change in its perception of security surveillance.

In a short period of time, the majority of banks jumped into time-lapse video recording for security purposes with both feet. They removed all of their 35mm film cameras and replaced them with CCTV cameras and 325 horizontal line time-lapse video recorders.

The consequence of this action, however, didn't rear its ugly head until several years of committed change and cost had taken place. The biggest of these consequences was that still images from videotapes could not be blown up for distribution throughout the police community. The tapes had too much distortion and not high enough resolution.

What is the lesson here? Don't completely junk existing technology simply for the sake of using new-fangled technology. Take a hard look at both and see where the new technology fits and how the old technology can still be of benefit.

A second step back in time can also be of benefit in this discussion. In the late 1970s, a new technology called *Quadraphonic* sound entered the stereo market. It

was a technology that gave the listener the ability to have stereo sound from four corners of the room at the same time.

Some people jumped on board with this new innovation by spending more than \$1,000 and enthusiastically sitting in the exact center of a new world of sound. But, within one year, the entire idea was dropped. It was too much trouble for the record industry to make the albums, and there was not enough consumer demand for the product.

What was the net result? I still have my system 25 years later. However, about four years ago, a new technology was promoted to the world (and widely adopted) called *surround sound*. What exactly does surround sound do? It gives the listener (viewer in most cases, since it is included in many video applications) the ability to have stereo sound from all four corners of a room.

The lesson learned here is: Be very careful of investing large amounts of money into a technology that is still unproven and selling in an untapped market. Until an industry settles on a standard of production or reproduction for the new technology, and the consumer demand for such a technology fits into a specific niche, it is likely that you may end up investing in a technology that is soon no longer available or, at the least, not widely accepted.

The trick is to apply both lessons to the security industry's latest move into the digital recording industry. To do so, dealers must use three concepts:

- Education about the benefits of the technology and your customers' needs;
- Forethought when deciding how to integrate digital tech-

Look to the Past for Answers

nology, especially knowing what pitfalls could come of a digital installation;

- Prudence when dealing with product manufacturers that are hot to sell digital technology as the “wave of the future.”

Educating Yourself About the Benefits of Digital CCTV Technology

What do the digital recorders on today’s market offer that is not available on standard videotape recorders? You must educate yourself.

- Digital storage and reproduction. This technology promotes accurate playback of color and detail. It also provides easy cataloging of information, easy reproduction in a wide variety of formats and easy distribution throughout networks.

- Advanced search capabilities. Digital search capabilities make it easier, from both a time and organizational perspective, to find archived information.

- Smaller storage mediums. DAT tapes are about one-fifth the size of a standard VHS tape. Hard drives are certainly smaller and more easily stored than videotapes.

- Built-in features and equipment. Many digital recorders include built-in multiplexers as part of their overall design. Some offer duplex capabilities to allow for recording and playback functions to work simultaneously.

- Expandability. Many units are designed to expand as the user’s needs warrant. Other units will integrate with digital storage systems.

The difference between digital recorders and digital storage systems is a digital storage system is made up of one or more “jukeboxes.”

Simply put, a digital storage jukebox is an electronic device that gives the operator the ability to utilize multiple digital audiotapes (DAT) for various recording and/or playback functions simultaneously, and/or automatically according to preset programmed conditions.

Thinking Ahead About Digital Tech’s Limits

What do the digital recorders, available on today’s market, offer that could be conceived as a disadvantage or shortcoming in the future?

- There is no set standard for recorded digital information. Today, there are four different digital storage methods or formats that are used in the CCTV industry. They come directly from the computer industry and are used for all sorts of video or photographic applications.

These methods are JPEG, WAVELET, MPEG and H263. Each format has its disadvantages. The problem for users is to decide which one will become the overall industry standard.

Waiting to see which technology becomes the standard ensures that system can be universally updated, reviewed and used three years down the line.

- The digital recorders that are available on today’s market are event recorders only. For the most part, the

units are well-designed and live up to the expectations of an upper-level event unit. However, these recorders should not to be considered "real-time" or even time-lapse units.

They are not designed to give you a movie-like image of long-term information, but rather snapshots or images of events that are a few minutes to a few hours in length. Granted, there are a huge number of applications that can use such devices, ranging from banks to shopping malls.

The question to ask is: what does your application require? Be careful that you don't trash all of your 35mm film or VHS recorders for this new video technology. There is absolutely nothing wrong with integrating a digital recorder into your existing VHS system.

- Resolution is a factor with the new as well as the old recording technologies. Resolution refers

to the quality of detail in the image. The higher the resolution, the better the detail.

For comparison, your television has 325 horizontal lines of resolution. An average, high-density video recorder (24-hour/72-hour) has 400 or more lines of resolution. The average digital recorder on the market today offers 325 to 375 lines of resolution in event mode and up to 500 lines of resolution in super-detailed or movie mode.

The higher the resolution, the more storage space (computer memory in digital recorders) necessary. The more storage space necessary, the less information you can record. Know your application and how much detail is necessary for the job to decide which technology best fits.

- Courtroom acceptability of video evidence. One potential problem facing digital recording is whether or not the recorded infor-



Photo courtesy of Sony Electronics

The search capabilities of digital CCTV systems make it easier to find archived information.

mation will be accepted in court.

The answer is that no one yet knows how the legal system will respond to allegations of digital corruption or digital enhancement.

Today, however, the court system generally embraces this medium. Digital images with proper watermarks (hidden coding information within the image) or encryption (digital scrambling of the video information)

are far more difficult to tamper with than standard analog information.

Being Prudent Can Assure Success

Digital recorders are here to stay. They are here to improve our ability to ascertain what transpired just prior to, during and after an event.

Be prudent when entering the market. Educate yourself on the simple terms and the meanings of those terms as they apply to recorders and their computer interface. Educate yourself about what the functions and features of these recorders are and then apply this knowledge to your needs.



Charlie R. Pierce, president of LRC Electronics and LTC Training Center in Davenport, Iowa, says that looking back at the past can help with installers' decisions about the future of digital CCTV.



Today, more law enforcement agencies are using digital recording as criminal evidence.

If your application requires more than a digital event recorder, look hard at a digital management and storage system.

Prudence also includes staying with those manufacturers that you have long-term relationships with and those manufacturers that have good reputations in the industry. Each day, there are anywhere from one to five new manufacturers of digital equipment coming into the CCTV industry.

Buyer Beware! Know who you are doing business with. Don't be afraid to give the new kid on the block a try. Often, they have great ideas and products. But be prudent about how much you are willing to invest with these new companies.

For the next couple of years, there will be a lot of competition, and no one can predict who will still be standing when the dust settles. ■

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