WHITEPAPER

Longwatch™
enabling security, safety, productivity

Video Helps in a Tough Economy

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1.0. Overview

With the economy slowing down on a global basis, managers are reluctant to spend money or move forward on prior plans. Indeed, many companies are postponing or cancelling projects and many have begun "cost cutting measures" that almost always mean "job eliminations."

Reducing costs is a responsible management action; the goal is to protect the return on the investors' equity. Video can provide a solution to many of the issues that remain, even when people are laid off or factories are closed.

2.0. Easing the Pressure of Layoffs

Disregarding the "closing" or "restructuring" costs on the income statement for the time being, closing a plant is a way to eliminate significant operating costs. But when the plant closes, the equipment and building often remain. The value of this idle asset is at risk of being reduced on the balance sheet—not due to depreciation, but due to theft and vandalism.

Video surveillance to deter and identify theft and vandalism is a classic application. Certainly, a company can contract with a "traditional" video surveillance supplier to get a system. But doing so has two significant drawbacks.

The first is the recurring cost of monitoring the video. Surveillance companies charge monthly or annual fees to watch the video and respond to alarms. While one cost goes away—the plant closing and risk of theft—another one is incurred.

The second drawback is the inability to view the entire collection of assets. If your plant is relatively small, this isn't much of a problem. A closed-circuit coax or Ethernet network can be used to connect cameras and related equipment. But if your business includes remote assets like pumping stations, waste treatment facilities, storage yards, and so on, then getting video from those sites is a different story. Traditional video systems have great difficulty reaching those areas, and only do so with a significant investment in specialized networking.

A modern video monitoring system allows you to use the existing plant network to connect cameras. For example, if you have a network for PLCs or RTUs at the remote site, it's likely you can get video over that network. This means no additional capital outlay for the network, no additional support cost, and your operations people can see what's going on anywhere in the plant from the control room.

Today's digital cameras and video monitoring software can even spot intruders and sound an alarm. The camera or the video software detects when something new enters its field of view—such as a person in the storage area or a truck entering through a gate—records the image, and alerts the operator. This is far more effective than a sleepy human operator, who can easily miss the intruder.

A modern video system, such as Longwatch, even offers integrated card access control from a central location, eliminating the cost, inconvenience and insecurity of brass keys. Longwatch provides a video of whoever is trying to open a door, and it sends a video alarm if an intrusion occurs.

If a remote area has no network connection, then a cellular system can bring video to the control room. Cellular systems cost less than $100 per month in most of North America.

3.0. Idling a Plant

A plant that closes may never open again. "Idling" a plant means that the plant is temporarily shut down, with the intention of restarting production in the future. This may be because of a labor strike, material shortages or economic conditions, but it means the plant must be maintained in a state of readiness. Therefore, a skeleton crew of operations and maintenance personnel must be kept on duty.

Some of the tasks include monitoring tank levels, keeping heat in the building, isolating valves and pressure vessels, and monitoring for leaks. If the plant goes into "hot idle"—such as keeping a blast furnace going, even if it is not making steel—then the need for continuing control and monitoring is more critical.

Once again, video can greatly expand the capabilities of a skeleton crew. With strategically placed cameras, operators and maintenance personnel can keep an eye on plant equipment, and look for escaping gases, liquid leaks, and similar problems. With the ability to tilt, pan and zoom cameras, operators can even read local gauges.

In an idled plant, video performs double duty: it can monitor the plant AND provide video surveillance for security. It even can dispatch alarms and video to a web browser or cell phone, for remote monitoring and timely response.

4.0. Return on Equity

Preventing downtime, minimizing downtime and reducing errors, rework or wasted product are all ways to keep assets producing a return for the shareholders. For more on how to use the DuPont formula to calculate the return on equity, see the sidebar, "Calculating ROE." Here's how video helps increase the ROE:

Video can help keep the plant up and running. Longwatch, for example, delivers video clips to the operator automatically when an event occurs. If a machine jams, or a PLC detects an error condition, Longwatch sends an alarm message to the operator at the HMI. The message has a video clip attached to it, and the clip shows what happened BEFORE the alarm occurred, as well as what happened after. This helps the operator decide quickly on the form of response, and helps with troubleshooting to avoid the problem in the future.

The Longwatch system can also "babysit" an intermittent problem. Operators no longer need to stand by a machine wait-

Calculating ROE

If a company is publicly held, or if it has outside investors, then management's prime responsibility is to protect the interests of the shareholders. And, in any economy, that means providing a return on equity (ROE): that is, value earned as a result of the investment. The calculation for ROE is called the DuPont Formula, and in involves three components, each of which are manageable by the company's leaders.

In simple form,
the DuPont formula is:
ROE = sales/assets x assets/equity x profit/sales

which, in its reduced form, yields:
ROE = profit/equity.

Let's look briefly at each of the components, since they bring different opportunities for return to the shareholder:

The first component reflects the asset intensity of the business. That is, how many assets are required to create a given unit of sales? One method to reduce asset intensity is to reduce inventory. That's why many companies focus on "lean manufacturing" techniques: why tie up shareholder money in raw material or work-in-process inventory (which can get damaged or stolen or outdated)?

Another method is to sell the plant and lease it back from the new owner (this takes the asset off the balance sheet.) Yet another method is to contract out all the manufactur-

ing for a problem to occur. Longwatch will continually collect the video, but send it only when the problem occurs, giving a quick indication of what just happened.

When a plant is up and running, and when machine downtime is minimized, the asset utilization of the DuPont formula is increased, increasing ROE.

Longwatch provides a unique advantage with its networking capability. First, it is capable of using either the instrumentation network or the existing plant (IT) network. That means no additional capital expenditures to install video. In addition, the ways that Longwatch software minimizes network traffic means that you'll get more mileage out of your existing network. Again, this stretches your existing investment, freeing up investor funds to be used elsewhere in the business. And Longwatch software is so affordable, it doesn't require a big capital appropriation to get started.

Because you don't need to borrow money or use large sums of capital budget to get a Longwatch system, the asset leverage in the DuPont formula is available for increase in other ways.

Video can be used to monitor, study and analyze production processes. Every process control system or manufacturing line has a worker or a shift that outperforms the others. One shift consistently makes a better batch or builds a better refrigerator. One worker produces more widgets. Why? Video can find the secret. For example, video can monitor four different assembly line operators performing the same task. By using a video historian, which can playback four different videos at the same time, engineers can determine why one operator is faster than the other three.

Video can monitor machinery or people so that you can be sure your standard operating procedures are being followed. Video can also be used as part of a batch record, to validate that steps were performed. Avoiding the need to re-work off-spec product, or even avoiding a recall from the market, helps keep your costs down. Video can even help you respond quickly and accurately to accidents, claims, litigation and other issues. Doing so helps you avoid unnecessary costs.

ing (growing in popularity, at the expense of putting your processes and know-how in the hands of others.)

One of the most often-addressed items affecting asset intensity is "uptime." Let's say your plant is capable of producing 600 widgets an hour. 10 minutes of downtime will reduce your output by 100 widgets, thus reducing the "sales" generated by the assets, and thus reducing this part of our formula and reducing overall ROE. So, preventing downtime, minimizing downtime and reducing errors, rework or wasted product are all ways to keep our assets producing a return for the shareholders.

The second component involves the use of equity versus the use of credit. Essentially, do you buy all your plant, equipment and inventory? Or, do you borrow some money to make those purchases, leaving the equity (shareholder money) in the bank as collateral? Certainly, the times are very different today than they were six months ago or six years ago. Credit is not readily available, and companies that "over leveraged" (borrowed too much) are scrambling to repair their balance sheets.

But let's say you can borrow money at 10% but make a product (or service) that has a profit of 20%. And let's say you could use some of your money in the bank to expand the business, or increase the service to and loyalty of your existing customers (who are much more profitable than the hard-to-find new customers)? Wouldn't it make sense to borrow some of that money? That's how the second component works. If you want total

5.0. Summary

These are difficult times for everyone. Nobody likes to see people lose jobs, nobody enjoys the stress that comes from extra work, yet everybody wants business and earnings to continue "as usual." To help contain costs and stretch every available dollar and hour, a smart, easy-to-install and cost-effective video system can help you preserve your profits and preserve your business. Video systems like Longwatch provide "extra eyes" for the operator. And the video that's collected can be used for many purposes, from the classic "surveillance" to thwart vandalism and theft, to new "video as a sensor" to help operators be in several places at ones, ensuring that the plant is running smoothly, safely and in a quality fashion.

6.0. About Longwatch

Longwatch, Inc. was founded by industrial automation and software veterans with the goal of simplifying video delivery over existing SCADA, HMI and distributed control networks. The result is the Longwatch Video System™, a portfolio of products that enables SCADA system users to view events and easily verify alarms at local and remote sites using both legacy and new networking infrastructures. The system integrates video and system alarms on the same display for fast, reliable operation and decision-making. Applications range from process monitoring to surveillance for security and safety.

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security, don't borrow. If you want higher return on equity, consider borrowing within sensible limits.

The third component is perhaps the most familiar. Profit margin. There are so many elements that make up profit (which is essentially price minus cost.) Assuming (for this example) that price is fixed, then the way to improve profit margin is to reduce cost. That's why companies are aggressive in controlling and reducing costs. It can be done by reducing the number of parts needed to build a product, reducing the time necessary or reducing the labor cost.

But price isn't fixed. Higher quality goods, and goods that are delivered faster to meet customer needs, can command higher prices. Lower quality items or items that arrive late or need to be stocked by the customer (tying up their cash) command a lower price. Video can help you monitor processes to increase quality and cut production costs.