White Paper: How to Find Profits in New Places

When the enterprise cabling installation industry started, the question was why certify? Now, 15 years later, there are dedicated job classifications for copper, fiber and wireless; new technologies, consolidation of service providers, less privately owned datacenters and more complexity to the overall business.

TABLE OF CONTENTS

Introduction

Over the last twenty years, cabling standards have changed, and contractors have changed to keep up with them in order to meet suppliers warranties and ensure a quality job. The one thing that hasn't changed is the need to increase profitability and manage cash flow. Since advances in testing technology have reduced the time to certify to just a few seconds, it would seem that little could be done to improve this part of the installation process.

Process Waste and Lost Profit

If one takes a larger view of the process, however, it becomes clear that there are a lot of places where time is wasted. For example, in a recent survey of over 800 installers, 44% reported having to retest links because they were tested to the wrong limits. Thirty-seven percent reported dealing with negative loss fiber measurements. (A negative loss in a fiber is like recording a negative time in a 100 meter dash - something obviously is incorrect.) In just one month, those customers reported spending over 45,000 hours on such issues - at prevailing labor rates that translates to over two million dollars. A faster tester could slightly reduce the time wasted on these mistakes by making them faster. A far better solution would be to eliminate them altogether.

Installers don't want mistakes and employ a number of approaches to minimize them. One method is to simply hire more skilled employees. However, even in today's labor market, it's not easy to find workers with an understanding of the nuances of cable and fiber testing. Seventy-eight percent of owners report that finding good workers is a challenge.

Management could also more closely supervise the teams performing the testing. Project Managers at these firms have the knowledge to make sure that mistakes are avoided. Indeed, over 80% of installer owners report that their project managers ensure that things are done right. Unfortunately, the very nature of today's cable installation business makes this tough to do. Most contractors work on multiple jobs at the same time, and even within a job they may have to move from floor to floor, and wait for construction teams to finish other parts of the job. Seventy percent of installers report moving a tester from one job to another and then back at least once every month. Given that a majority of project managers report being stretched too thin, it's unlikely that they would be able to successfully chase their testers around making sure they're always set up and used properly.

Finally, training staff members is no doubt a good idea - we've trained thousands of technicians in our Certified Cabling Test Technician (CCTT) program. Unfortunately, this can get expensive as classes require not only a small tuition charge, but two days away from the jobsite, and travel if local classes aren’t conveniently available.

Key Steps in Finding Waste

All of these are good ideas, and most contractors employ them all too some degree. Yet, the 800 contractors in the survey still managed to lose two million dollars in profits in a single month. The reasons they're not completely effective aren't hard to discern.

First, there is the issue of turnover. Not only do cabling contractors see the typical turnover issues of any business, but its job-driven nature means a steady inflow and outflow of temporary workers. Making a significant investment in training a worker who in all likelihood will be working for your competitor next month is not smart business.

Second, these approaches are expensive. Training is costly, as we've seen. Hiring top notch workers plus more project managers to supervise them will also take a big bite out of the bottom line.

Third, and most important, all of these approaches rely on people doing the right thing. And while the vast majority of people want to do the right thing, that doesn't always mean they do. People get tired, or don't pay as much attention as they should, or forget details. And the working environment doesn’t help: multiple jobs, multiple standards, multiple skill levels, and multiple testers, all add complexity. It’s amazing that things work as well as they do.

Mistake Proof: Poka-Yoke

Manufacturers have been dealing with these sorts of problems for decades. During that time, new management approaches have been introduced to the factory floor. Pioneered by the Toyota Corporation, these methods have been adopted by companies worldwide, including at Fluke Networks, where these approaches are known collectively as the Danaher Business System (DBS). The result is fewer mistakes, higher quality, and greater customer satisfaction.

The most relevant approach for this particular class of problem is called "Poka-Yoke" (ポカヨケ), a Japanese term that means "mistake proofing". A poka-yoke is a mechanism that helps prevent an operator from making a mistake. Techniques include preventing mistakes, correcting them as they occur, or pointing them out to the operator.

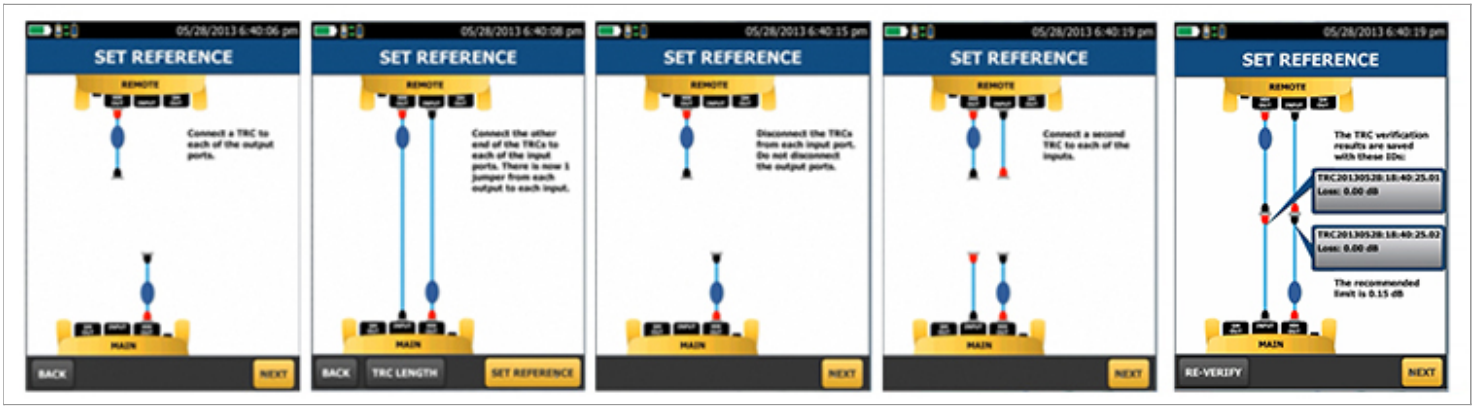
Examples of poka-yoke abound in today's world. The best designs of such systems are barely noticed by users. One of the most common examples can be found in your car's gas tank. The combination of size restrictor in the neck of the tank and a smaller nozzle on the unleaded pump makes it impossible to unintentionally put leaded fuel in a car that is not designed for it.

Another example that has become nearly ubiquitous can be found on ATM's. When these devices first were introduced, the user would insert their card, conduct their transaction, then collect the card. Or not. All too often, users would wander off leaving the card in the machine. The first attempt at poka-yoke was to have the machine beep if the card was left in the machine. A better solution is now more common, where the user swipes their card through the reader, so it never leaves their hand and therefore can’t be forgotten.

Mistake Proofing Your Cable Testing

By building poka-yoke into the cable certification process, these errors can be eliminated. Contractors don't need better employees - they need a better approach. Here's an example how poka-yoke can target a problem in certification. The root cause of negative fiber loss readings is improper reference set-up in the instrument. Setting fiber reference levels properly is critical to good measurements, but it is a relatively complex process. If any of the steps are performed improperly, every reading made from that point with the tester will be incorrect.

Given that the process is always the same, however, poka-yoke can be applied by leading the operator through the process step by step and checking that it has been done right. The sequence of screens below shows some of the steps in the process. As each is completed, the user taps "NEXT" and the tester verifies that the step was completed and presents the next step. Note the use of color coding on the cabling further reduces the chances of error.



Of course, there are many places in the cable certification where mistakes can occur. Each of these can be examined and the poka-yoke approach can be used to prevent or call attention to the mistakes. By eliminating these mistakes, contractors can reduce costs, increase profitability, and reduce the time to systems acceptance and therefore payment.