



The changing construction industry requires efficient training to stay ahead.

by Mark Scacco, PE

# Consult-a-Professional

Once upon a time (long ago... um, that's about five years ago), designers, contractors and other end users of technical software, hardware and equipment could make a purchase, and with minimal outside help, be up and running in a relatively short time. Of course users weren't pros at using their new purchases. They learned on the job but rarely saw a dip in productivity. New features were somehow familiar and became second nature fairly soon. Some users even read their manuals, reviewed white papers and obtained a few hours of hands-on instruction from the manufacturer or vendor. They then were considered "advanced users."

As professionals, we were easily able to pick up a new piece of equipment or software program, and figure out how it worked and how to apply it to our daily jobs with relative ease. Man, how times have changed.

## We Don't Need No Stinkin' Training

The tools we have at our disposal today are just what we want and need: powerful, full-featured and productivity enhanced. Robotic total stations track our every move; GPS-guided machines move dirt based on digital surface models, often with little or no staking required; virtual base station networks correct our GPS data in real-time; 3D laser scanners create virtual representations of our projects; and advanced software coordinates all of it. Users asked for this advanced technology and manufacturers responded.

All of this power and functionality comes at a price, however. Today's technology is no longer simple enough to pick up and learn on the job. Most products aren't as intuitive as they once were. But users, many of whom don't have that requisite experience helpful for learning new tools, need advanced technology to compete in today's design and con-



struction market. Developing the ability to wield that technology as a tool in business requires efficient training and an understanding of how it fits into a company's existing processes. If you're leery of investing in training, I recommend examining more of the specific benefits that can result from it.

**Understanding the Complexity of Products:** The hardware and software needed to complete today's projects is more advanced and more complex than ever. There is only so much information that can be conveyed via a drop-down menu or on a 2" x 3" LCD screen. As an industry we've moved beyond the basics and now expect our software and hardware to do more and more. "The CAD software we use today is a much more advanced design tool than it was in the past," says Tom Sanderson, PE, president of Sands Consulting Group LLC, an engineering firm in Illinois. "It allows us to reduce the overall number of applications we have to

## Technology today is more complex than ever before.

buy and maintain, but it also means it's more complex." To that end, users now have complete libraries of point descriptions stored in their data collectors and their topographic surveys can "draft themselves." With the right combination of hardware and software, contractors can grade large portions of sites with minimal to no construction stakes. The list of what is possible today is endless, but it all points to a single conclusion: technology today is more complex than ever before. And it requires more of a learning curve than ever before.

**Remaining Competitive:** It's no secret that the construction and engineering industries face a shortage of qualified personnel. Numerous reports from industry publications indicate that a shortage of qualified professionals is the result of too few graduates with degrees in construction, surveying and engineering, too few experienced applicants with the required skill sets and a booming construction market with driving demand. The construction and design markets continue to grow and there are more projects than qualified firms can easily manage. Many firms are faced with the challenge of doing more with less, and many find this achievable only by using advanced technology. Firms that fail to embrace and implement the tools currently available (and do it well) put themselves at a competitive disadvantage. Really, how many firms that are still hand drafting or using mechanical theodolites are still in business?

The products used on the job are just a part of the equation, though. Service can make or break a job. And as fierce

as competition is these days, service counts more than ever. Well-trained employees are more likely to retain and maintain clients.

**Retaining and Attracting Employees:** In today's market, qualified individuals have many career options and can choose among several attractive positions. Most look for companies that provide stability and career growth, and that invest in the future of the company and the individuals who work for the company. Training is an obvious example of employer commitment. Tom Featherstone, owner of construction management company Featherstone Inc. of Down-



Technology training translates directly into increased productivity, whether in the office or on the jobsite.

ers Grove, Illinois, says, "After we sent our project managers to train on our project management software, they felt more competent digging in and using its more advanced features." Additionally, trained employees contribute more to the success of a company and to their own growth. A well-trained staff is productive and happy and helps improve the bottom line. "[Training] also reinforced our commitment to their professional growth with[in] our company," Featherstone adds. Educated and trained employees are also less likely to make mistakes.

### Types of Consulting and Training Available

As technology has evolved, so have the methods of learning the technology. In the past, most learning was centered on basic training. *Basic Training* is the simplest form of technology consulting and usually consists of hands-on instruction of the specific features of hardware or software. Depending on the product, this type of training is often presented in a classroom-type setting or other suitable environment where the trainees can work directly with the device or application. Basic training is commonly referred to as "picks and clicks" training because users learn what each pick or click of a fea-



Larger conference room training typically introduces users to new technology and its potential benefits.

ture does. While it is important for users to learn the basics of a product before they can move on (you do have to know how to walk before you can run), it is often quite generic and usually does not take an organization's particulars into account.

**Advanced Training** picks up where basic training ends. As the name implies, this type of training provides advanced knowledge on a product, focusing on specific features or functions in greater detail than it did in basic training. Depending on the type of advanced training, it might be customized to meet a company's specific needs and to train only on the features that are important to an organization. Today, firms and organizations look for very specific skills when hiring new employees. With luck, an employer can find an applicant who already has basic knowledge of the equipment or software he or she will be required to use on the job. Additionally, current staff members may have learned the fundamentals of a software package through the process of trial-and-error. In either case, basic training may not be needed—advanced training might be better. Advanced training, followed by immediate on-the-job use of the technology usually results in modest increased productivity and efficiency.

However, no man or woman is an island. All employees are part of a project and an overall process. An advanced user may be more efficient, but if a company's design or construction process is not set up to take advantage of the technology, productivity is inhibited. To see the most dramatic increases in time and money savings, productivity improvements and profit gains, the technology must be integrated into an organization's specific processes.

At the high end of the technology consulting ladder, **Process Optimization and Technology Integration** aims to make users more profitable and efficient by examining a company's specific needs and integrating technology into that process. The goal is to not upset the apple cart with disruptive technology that forces users to do things a certain way. Rather, the technology is dovetailed into existing (and assumed profitable) procedures to eliminate wasted time and effort, and to drive profits even higher.

This type of consulting typically involves an assessment of current processes, staff and work environment; the development of a workflow optimization and technology integration plan; and finally, implementation of the plan through a variety of methods. Implementation may involve basic and advanced training, but will also likely include "over-the-shoulder" consulting, in which a profes-

sional with experience in both a specific industry segment and the technology works with the user and his/her staff to complete an initial project. In addition to training, a user's current process is "optimized" (NOT reworked from scratch!) to identify and eliminate bottlenecks in procedures. An analysis of how the technology can fit into an organization and how it impacts what a user does, from start to finish, is the most critical component of successful implementation. Unfortunately, it is also the most often neglected.

### What To Look For In a Consultant

Now that you better understand the benefits of technology consulting, you may be wondering what to look for in a consultant. The good news is the criteria for selection are straightforward. Demand these two qualifications, specifically:

**Real-world production project experience.** In order for a consultant to be able to advise you on your business, he should have experience in your business. In the construction and engineering industries, look for someone who has designed a project or worked in the field on a project, or both. Preferably, look for a technology consulting firm that has recent experience and that has references that relate to the construction industry (not just the technology).

**Expert knowledge on product.** It may seem obvious that the consultant should have thorough knowledge of the product, but you'd be surprised how many instructors don't. Many have worked with previous releases of software or past models of hardware and have not kept their knowledge current. Your consultant should at least have expert knowl-

edge on your product version. Also, if yours is not the latest version, the consultant should have knowledge of the latest version so as to better advise you. In addition to the expertise on the software, they also *must have experience using the software to complete a real-world project*. This is directly connected to the first item. Knowing what works and what doesn't work in a production environment is essential.

In addition to these two critical requirements, there are other criteria to consider when choosing among consultants.

- Make sure the consultant has the availability and capacity to meet your training needs.
- Be sure to ask about the individual consultant(s) who will be providing your training. Don't assume that because the consulting firm has a good reputation that the individual consultant meets the two main criteria.
- Remember the saying, "You get what you pay for." If a prospective consultant's fees seem too good to be true (read: very low), then they probably are. Expect to pay for quality consulting. The flip side, of course, is to be wary of consulting firms that charge overly high fees without providing expertly qualified consultants.

These selection criteria are pretty straightforward. The bad news is that there are very few consultants and consulting firms that meet all the criteria. To be sure, there are

many individuals and firms that meet some of them and can provide basic training services. Be sure to get referrals from colleagues and vendors, and ask hard questions of potential consultants.

### Where to Find Help

Finding a qualified consultant is the first step in getting the most out of your technology. Unlike other types of services, "technology consulting" for engineers, surveyors and contractors has little to no listing in the yellow pages. Fortunately, there are resources available; you just need to know where to look.

### Manufacturers

Depending on the product, the manufacturer itself may offer training. This is more true for specialized products or newer hardware and software with a small user base. Manufacturers may use internal staff members to deliver training or they may hire independent consulting firms. Typically, the consulting and training is delivered by instructors very knowledgeable with the products and often they have some industry experience. Not all manufacturers offer training or consulting services and many rely on their reseller channel to provide these types of services. Check the manufacturer's website for availability.

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### Resellers

The first place to look for basic and introductory training services is the reseller who sold you the software or hardware. Nearly all resellers offer standard features (picks and clicks) training to get you familiar with the equipment. Many resellers maintain a regular schedule of classes on various products and also offer custom classes that can be scheduled at any time and filled with attendees only from your organization. The instructors for classes presented by the resellers are often very knowledgeable about the product(s); a few have industry experience as well. Check your reseller's website and look for a "Training" link.

### Technology Consulting Firms and Independent Consultants

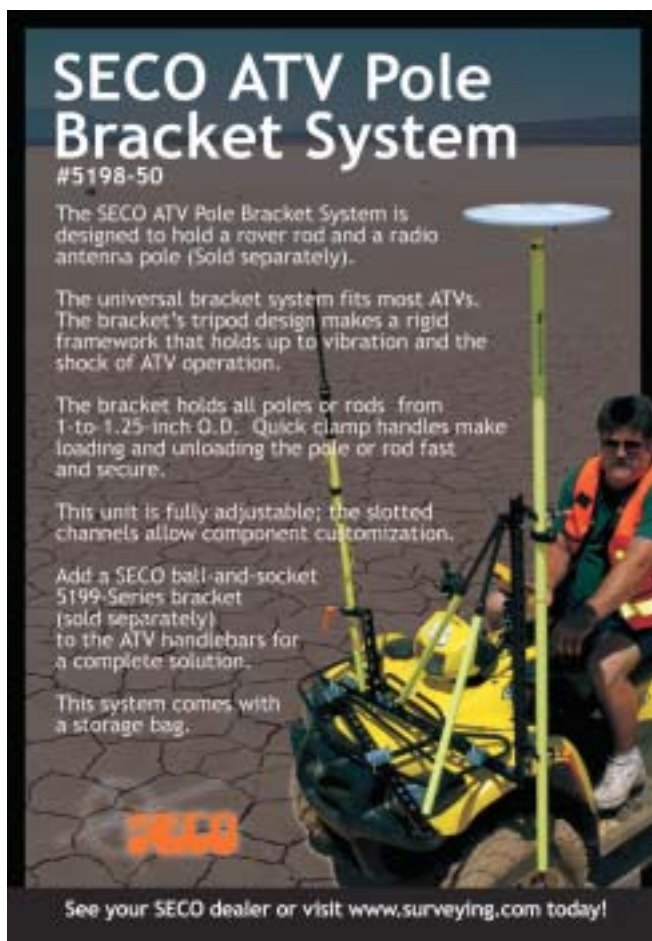
A less-visible source of consulting services are individuals and firms that specialize in providing training and

consulting on software and hardware. These consultants have deep knowledge of the products they provide. More importantly, the qualified firms have extensive, relevant industry experience and understand your organization's business outside of the product on which they train. Industry experience is critical to understanding what your firm does and how technology fits into its process. This expertise on software and hardware features combined with their industry experience make them uniquely qualified to help you improve your business efficiency and profits. These individuals and firms are often more difficult to locate, but with a little research on the web you can find what you need. Start by asking your reseller for a referral; check out the manufacturers' websites for links to third-party consultants; and read discussion groups for names and contact information.

### Poseurs and Pros

The most important factor in getting the most out of training is asking the right questions to make sure the consultant you hire is qualified. No one knows your business better than you do, so ask tough questions to weed out the poseurs from the pros. Finally, be prepared to commit some time and money to consulting—the return on investment is well worth it. **SP**

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