The Surveyor's Time Machine

Product Review
Triumph-LS software

Polaris Shows the Way
Leveraging workflow

Revitalizing a Business
With laser scanning
A WELL-PLANNED SUCCESS

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Aft er several years in Canada working as a consultant in the world of finance, Guillaume Boyé returned to his roots: in 2012 he joined Boyé Géomètre, the 30-year-old surveying business founded by his father, François Boyé in Branne, France. Although Guillaume was a newcomer in the geospatial field, he provided the business with a tool—his alternate point of view—that would prove to be fundamental in developing a new operational approach.

In the architectural field, Boyé Géomètre ranks among the top firms in the Gironde and Aquitaine regions and has always worked with optical and GNSS instruments, providing its clients with 2D CAD plans, elevations and cross-sections of buildings and infrastructures.

“In the years leading up to 2012, many of our competitors adopted new geospatial technologies and capabilities. As a result, they became much stronger,” Guillaume explained. “Despite our long-term experience, our final products were no different from those of our competitors, which kept us from achieving the needed profit margins.”

In order to face the new challenges imposed by the market, the firm needed to make a change in order to maintain sustainable levels of growth and profitability.

Using his experience in market analysis, Guillaume noticed the rapid, widespread growth of Building Information Modeling (BIM) in the construction industry and the central role the three-dimensional component plays in the design, construction and management of buildings. This led him to see laser scanning technology as a possible solution to his firm’s dilemma.

So, in 2013, Boyé Géomètre acquired a Trimble® TX5 laser scanner with the aim of introducing state-of-the-art 3D deliverables to the BIM market. But this turned out to be easier said than done. The team thought that just because they were using a laser scanner, getting high-quality 3D deliverables would be an easy task. Instead, Guillaume soon realized that the team would require specific training to gain the skills needed to process the data and create accurate 3D models.
“Our team learned pretty quickly how to manage the acquisition and registration processes with Scene software,” Guillaume recalled. “But the truth was that we were not 100 percent comfortable with 3D technology. So it looked like our idea of providing our clients with top-quality 3D deliverables was harder than we had originally thought.”

**Back to Basics**

Even though the creation of BIM-quality 3D models was a bit too challenging for their initial capabilities, Guillaume was still confident that laser scanner technology would benefit their business. Plus, his previous experience in finance taught him that when one door closes another opens. So, by observing the data acquired by laser scanners, Guillaume turned his attention to the enormous amount of information that these instruments are able to produce and what could be done with it.

He took a step back and realized that Boyé Geometre needed to focus on providing what their traditional clients needed. He concentrated on deliverables such as 2D CAD models and taking advantage of the unique features that laser scanning technology could provide. There were multiple benefits of this approach towards scanning deliverables: time in the field was reduced and the team could also capture every detail of the building with the possibility to conduct virtual revisits to the site at any time.

In order to create 2D CAD models, Boyé Geometre registered point clouds and generated orthophotos for the models. The results were detailed 2D plans, elevations and cross-sections of buildings. “Using this approach we could effectively use our 3D laser scanner in place of a total station while getting the same kind of deliverables,” Guillaume explained. “We also obtained enormous advantages in terms of quality.”

A scanner at work at a client’s project. Boyé Geometre developed the ability to produce high-quality deliverables.

“Today, added value resides in the data and how it is used.”

Boyé Geometre uses scanning to bring extraordinary detail to 2D information.
We are now offering more than simple 2D line drawings: you have two dimensions coupled with extraordinary detail.”

In 2015 Boyé Geometre introduced Trimble Realworks® into their workflow to take advantage of the software’s capability to manage large amounts of scans. Shortly after this, the firm rented a Trimble TX8® laser scanner in order to compare the differences between the TX5 and the TX8. The team profited from the new features of the instrument and, relying also on its native compatibility with Realworks, eventually settled on the TX8.

Currently, the company carries out surveys of very complex structures such as hospitals and public places—even crowded—in less time and with a degree of accuracy impossible to achieve without a laser scanner. “The TX8 allows for the acquisition of millions of points per second without necessarily having to sacrifice speed in favor of other parameters such as distance,” Guillaume pointed out. “It is also an extremely reliable instrument that we have used to complete surveys in all kinds of weather conditions.”

Given the instrument’s ease of use, Boyé Geometre enjoyed higher productivity—thanks to the fact that they could take on more jobs and outsource them to less-experienced surveyors—while also benefitting from the Trimble TX8 and RealWorks integration. “RealWorks is an easy-to-use and highly reliable software when dealing with large amounts of data. In addition to this, its powerful algorithms make the use of reference targets unnecessary, reducing execution times,” Guillaume said.

**New Possibilities**

The introduction of the laser scanner in Boyé Geometre’s surveys allowed the firm to revitalize its business in the architectural market. But the opportunities related to this new approach were far from over. In fact, a year after the introduction of the TX8 into Boyé Geometre’s workflow, Guillaume began digging into the integration capabilities of RealWorks with SketchUp software.

“The integration of these two softwares provided our team with infinite possibilities in terms of deliverables,” Guillaume explained. “SketchUp was the missing piece that enabled us to provide our clients with the kind of 3D products we initially had in mind.”

The team started to use the point clouds in RealWorks to generate SketchUp models.
From those models, the team could easily extract 2D models or provide clients with full 3D deliverables. “Once you create the 3D model with SketchUp, basically no time is required to generate 2D models,” Guillaume said. “SketchUp’s user-friendly 3D environment and plugins for the management of RealWork’s point clouds helped our team overcome the challenges we had initially encountered in seeking to enter the 3D world.”

Since Boyé Geometre started providing 2D and 3D models, its clients are have come to expect even more: BIM-quality 3D models. The team is now testing the first deliverables of this kind.

Although Guillaume had stepped into a completely new environment, he was able to see the inherent potential of laser scanning technology and thus revitalize the family business. “By now, the geospatial market has matured; the added value resides in the data and how it is used. Obviously, the more information you have, the better it is,” Guillaume pointed out. “This is why laser technology has what it takes to revolutionize the surveying industry.”

By introducing the TX8 scanner, RealWorks and SketchUp to their workflow, Boyé Geometre was able to provide their clients with extremely detailed 2D and 3D products with very short delivery times.

“The integration of RealWorks and SketchUp provided our teams with exceptional flexibility in deliverables.”

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By combining scanning data with imagery, Boyé Geometre produces photorealistic 3D models.
This translated into higher productivity and an almost immediate return on investment, giving the business a considerable advantage over its competitors.

According to Guillaume, however, traditional instruments will not fall into disuse: “The key word is ‘integration.’ In the future, we will see more and more instruments that are capable of integrating optics, GNSS and lasers with fast and easy-to-use software.”

Take a newcomer’s word for it.

Fulvio Bernardini is a freelance writer based in Italy who specializes in the geospatial industry.