



## Editorial

>> Marc Cheves, LS

# THE American Surveyor

A FOOT IN THE PAST... AN EYE TO THE FUTURE

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**Bruce Carlson, founder and president of Carlson Software**

There are lots of reasons why I love my job, but one in particular is the macro view it provides of our industry as technology develops, and seeing it at trade shows and various user conferences. The down side, however, is that spending so much time on exhibit floors prevents me from engaging in what I have, for many years, called my continuous education.

It was therefore a distinct pleasure to attend Carlson's user conference that celebrated 25 years of providing software to the surveying, civil engineering, mining and construction communities. I was one of more than 350 attendees who benefitted from 80+ sessions about every aspect of Carlson's offerings. The best part of the Carlson event, because it had no exhibits, was the opportunity to spend two days in classes learning about its products. One of the things that impressed me the most was the attention Carlson pays to user

feedback. In each of the seven classes I attended, the instructor kept a Word doc open behind his PowerPoint, and whenever an attendee would suggest a software improvement, the group would discuss it. If the suggestion was deemed worthwhile (or even possible!), the instructor would add it to the list. Nowhere was this more evident than in the classes taught by Bruce Carlson, the company founder and president. Bruce claims he can still remember which user made which suggestion. To say that Carlson is fanatical about incorporating user feedback into its products would be an understatement.

## The Big News

In his keynote, Bruce Carlson announced that Carlson will offer an additional CAD engine, IntelliCAD, bringing choice to its product line and to its users. Bruce mentioned that even though they have been developing on the AutoCAD platform since 1989, they will no longer be allowed to sell it, but will continue to support both AutoCAD and Autodesk Map.

Carlson is a member of the Open Design Alliance and the IntelliCAD Technology Consortium, and has converted its 24 million lines of code, 1,722 Carlson commands and 496 LISP routines to run on IntelliCAD. According to Bruce, IntelliCAD will provide not only choice but platform dynamism as well. The advantage for the user is that since IntelliCAD is included in the purchase of Carlson products, the need to purchase an additional CAD package is eliminated.

Dave Carlson, VP of software development, outlined several new features, including a document management system that allows drawings to be shared, a layer library, the ability to drape aerial images over 3D models, and the avoidance of overlap in area labels. I was particularly pleased with the overlap solution, having spent an enormous amount of time—going back to using a plotter to prepare maps in the late 1970s—moving labels around to make them readable.

Carlson supports and/or has strategic alliances with Leica, Pentax, Sokkia, Magellan, JAVAD GNSS, Navcom and Topcon. It offers the user a choice with two handheld products (Two Technologies and Juniper Systems). At the conference Carlson announced an alliance with HydroCAD, a leading

hydrology software developer. Work is underway to port Carlson's software to MicroStation V8 and ESRI's geodatabase. Additionally, Simplicity Systems software—acquired by Carlson in 2002, and used by state DOTs—has already been ported to V8.

## Machine Control – Carlson Strengthens Position

Addressing Carlson's foray into machine control, VP Randy Noland of the Positioning and Machine Control Division provided some facts and figures about the world's largest manufacturer, the \$7 trillion construction industry. While China imports most of the world's steel, it and other emerging countries are also importing 75 percent of the world's cement. In 1972, two thirds of the world's population was rural. Now it's half urban, half rural. By 2050, it'll be two thirds urban. Add that to the fact that since 1964, productivity around the globe has increased by 250 percent, but in construction it has dropped 25 percent, making the need for lean and productive solutions obvious. Because of the difficulty in finding skilled labor, companies are investing in technology rather than employment. Projections for the size of the U.S. machine control market for 2006 were \$273 million, a growth of 25 percent. It ended up at \$400 million, a growth of 32 percent. Even so, only 7-10 percent of the world's construction machines are automated, making the growth opportunity huge.

Noland added, "Growth for machine guidance & automation has been plowed by three primary players. These companies deserve a lot of credit for their leadership. We believe that Carlson's opportunity is in driving open solutions to the market, thereby accelerating growth. That will benefit us all. We are passionate about taking a leadership role in creating an open solutions job site and inviting all positioning players to come and work together."

Noland went on to say, "Carlson machine control products work across most all machine types, construction applications and data formats, bridging gaps between multiple manufacturers systems." Supported strategic partners include Prolec, MOBA, Topcon, Leica, APS, Navcom and JAVAD GNSS. The company projects a 400 percent increase in the installation of its gear this year.

## Data Fuel and New Terminology

Automated machines, according to Noland, are like printers: without data they just sit there, waiting. With data as the fuel for positioning, a huge market for surveyors lies in both data preparation (creating models) and in data translation. Or, as Noland puts it, "A shift to positioning expert." Says Noland, "Our position is to encourage the convergence of all these disciplines, (surveying, engineering, GIS and construction) through open and compatible software."

Bruce shed some light on the newly-coined terms "4D" and "5D". While the fourth "D" of the first term is Time, Bruce explained it this way: on any large construction project the timing of construction is critical because the budget has to acknowledge that a bulldozer is right where the work is, an earth mover ranges over a wider area, and a dump truck can be used to haul longer distances. Each of these time elements must be calculated, which is how we get to 5D: 5D equals 4D plus costing.

Looking to the future, Dave Carlson said the aforementioned wish list from customer feedback has grown to 200+ items. In addition to document management, annotation rules/overlap avoidance, and support for ESRI and MicroStation, the company is working on trig level data processing, GPS post-processing and CAD standards.

After the event, Carlson announced the release of Carlson 2009 Office Solutions, which includes Carlson Civil 2009, Carlson Survey 2009, Carlson Hydrology 2009, Carlson Mining 2009, Carlson Natural Regrade 2009, Carlson Takeoff 2009 and Carlson GIS 2009.

All in all, I thoroughly enjoyed myself at the conference and learned more about Carlson's products in two days than I have in all the years I've been writing about the company. This \$22 million family-owned business has set its sights on becoming a dominant player in the global construction and land development software market, not by force but by open architecture, promoting that "playing well with others" will grow these markets and empower user solutions. Based on its 25-year history, its acquisitions and its ability to play with a variety of vendors, the future looks quite promising. 