



## Are You a Systematic Thinker?

**W**elcome to the [ASPRS 2012](#) edition of *LiDAR Magazine*, which is now available in both print and online. Thanks to our hard working team and to you for your ongoing support and interest.

We have an outstanding selection of articles in this edition of *LiDAR Magazine*. From BIM to interior and exterior mobile scanning, to historic preservation, understanding scan angles and we round things out with an article on the secret of managing high volumes of LiDAR data.

In a recent blog I noted that the 3D laser scanning/LiDAR industry is booming. For that matter the US, as well as a number of other economies around the world are acting much healthier. Unfortunately the same cannot be said for many European economies, but even so the laser scanning industry within the EU is healthy from what I hear. As evidence of an improving US economy Phoenix, Arizona, one of the hardest hit real estate markets is starting to come back with bidding wars being seen on some of the lower priced homes—great news.

As we all know the real estate market experiences boom and bust cycles. What is less well understood is that the natural state of free world economies, like the US and Canada, is prosperity. It's what I would like to call the prosperity cycle. When not impacted by abnormal forces such as the savings and loan crisis of the late 1980's, the dotcom bubble of the late 1990's and the leveraged credit collapse, which caused the most recent implosion, the US and other free world economies are naturally prosperous. If only the politicians and the greedy could understand this.

On a related note, my son is taking a course in systems thinking. They are studying such things as the 10 tools that make up systems thinking. Things like systems archetypes and behavior over time.

How is that related you ask? Each country's economy is a big system, which taken together make up the world economic system. I tend to think systematically. My Ph.D. is in Systems Engineering. They say today people with advanced degrees in systems engineering are among the most highly recruited majors. I guess I was 30 years ahead of my time.

I believe systematic thinkers prefer to look at the Big Picture, to think strategically and holistically. The reason I bring this up is



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because of the work I am doing with transportation agencies and their adoption of mobile laser scanning. These departments of transportation represent complex organizational systems. Actually I think it helps to think of them as organisms, rather than organizations, although as you can see the two are closely related, at least in language. If we think of each department in a DOT as an organ the analogy becomes even more meaningful.

The introduction of 3D laser scanning and LiDAR into the US DOTs is causing a significant disruption to the status quo. In truth, it is actually the larger transition from 2D to 3D workflows that laser scanning is just a proxy for. Organisms don't like change. They prefer standard operating procedure—SOP. When an organism detects new data coming from one of the organs the system usually identifies this as a threat to the SOP and the automatic defense mechanisms spring into action. The goal—surround it and kill it.

In the 1980's and 90's the introduction of GIS—geographic information systems into complex organizations such as a federal government agency of a large city experienced the same issues. In fact, as successful as GIS has become in many organizations I think the key proponents would agree that it still has not been fully adopted and its potential has still not been fully realized.

In order for DOTs and others to realize the full potential of 3D in their organizations a systematic approach to this game changing transition needs to be taken. This requires the leadership and support of senior management as well as the desire and motivation of the staff. It requires an understanding that if any single part of the system

is not functioning properly then the entire organization is going to suffer. This is not easy to accomplish, but in this case the natural state of the system is not going to work for you. It's not like prosperity. Change is not easy for people, let alone organizations.

Unfortunately one of the most important foundation elements of any technical organization—education and training is currently not able to keep up with the pace of technological change, let alone be out in front of it as it should be. This results in the technology providers not knowing the level of training and technical expertise that they can expect in working with a client. That is a major complicating issue in designing a transition plan.

The good news is there is not 4D or 5D to contend with. Well there is, but time and budget do not represent paradigm shifts like 2D to 3D. Our current 2D approach has been used for hundreds if not thousands of years. I propose that we look at this as the 3D decade. If we come up with a long range plan for where we want to be in 2020 we can make this happen—systematically.

One thing is certain, there are more questions than answers at this stage, but simply providing laser scanning/LiDAR services and data is not going to result in the kind of benefits that 3D technology is capable of delivering.

Please let us know how we can better serve you and let's promote prosperity.

Regards,



Gene Roe, LS, PE, PhD  
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and Comments

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