

The Revolution Starts Now

Time Domain has for some time been widely recognized as a leader in the development of revolutionary ultrawideband technology. But now the real revolution has begun. It is shipping product and talking about profitability.

Interview by Chris McFadyen



Time Domain Inc. CEO William Webb

Huntsville-based Time Domain Inc. is the leader in a technology so revolutionary the company attracts as much attention from futurist writers as venture capitalists. But the future has now arrived, and the investments are starting to pay off. Time Domain is actually shipping products — gizmos that come with plenty of "Wow" factor.

Featured recently on the History Channel's "Modern Marvels" program, the company's RadarVision device is used by police SWAT teams to detect culprits through solid walls. Other products under development span a wide range of breakthrough applications aimed at precise location and tracking, perimeter security, search and rescue, collision avoidance, terrain mapping, stealthy communications and unmanned robotic convoys.

The military is one of Time Domain's biggest customers, though it once was the thickest stone wall facing "ultrawideband."

Ultrawideband (UWB) technology uses very minute divisions in time — nanoseconds — to bundle and deliver information, rather than the traditional modulation of amplitude or frequency of radio wave bands. Because the method is so discrete and the power so low, the billions of little pulses can be transmitted widely across existing bandwidths (ultrawide) without interference. The Department of Defense once fought FCC approval of UWB applications, fearing the signals would interfere with weapons systems and global positioning systems (GPS) satellites.

Congressional pressure and scien-

tific evidence overcame a balky bureaucracy in October 2002, with the first FCC approval of an UWB device, Time Domain's PulsOn technology. Another approval, for the through-wall application, came a year later. And the military is now Time Domain's most active partner in developing new applications.

The foremost pioneer of UWB is Larry Fullerton, a former CSC-Huntsville employee who founded Time Domain in 1986. He is the company's chief technology officer.

CEO William Webb once headed the division of the company focused on government services. In a reorganization in 2003, his division became the center of a more narrowly focused product development effort. The company spun off a division devoted to development of personal area network (PAN) applications, which aim for wireless connections for devices — computers, telephones — within a small area.

Time Domain's two leading products have now gone through a second generation of development. The through-wall application grabs headlines. But just as hot is the newest version of the PulseOn technology, a module that's like UWB on a chip — allowing other manufacturers to test and integrate UWB technology in their products without being UWB specialists.

Back in 1996, Time Domain's business plan was to focus on licensing rather than product development. How has that changed?

We've come a long way. Licensing is still a part of the overall business

model, but we now target multiple revenue streams.

Our ultimate game plan is to focus more on product sales to fund our technology development and help pay the rent. We've leveraged contracts in future product sales, and we're letting our partners — our customers — underwrite technology development. Most of the development contracts result in demonstration of capability and advance a prototype that the customer can take forward.

We're also trying to create a dual use for our products. For example, as we develop a precise tracking system for war fighters, we can then sell that to firefighters as well — a more commercial use. Our SoldierVision through-wall radar product we are also selling to our more commercial market, the law enforcement and SWAT teams around the country. Dual use is a large part of our strategy.

Do you feel the company is at a turning point in its history?

The turning point began with FCC approval, after which the market realized the importance of ultrawideband. And then there was the restructuring in 2003, when we spun off the private area network part of the business, and then the recapitalization in 2004, when we hosted a number of strategic investors and partners. We have 40 different contracts worked in the last couple years, with 30 different government agencies and now have contract work with other commercial companies. That has propelled our success into 2005 and will continue in 2006 as well.

And we've really improved our product and are bringing out a new generation of radios and radars this year — both of which are hitting their stride going into 2005. In 2002 we had only 8 percent revenue from product. In 2004 it reached 20 percent, and at the end of 2005 we expect that figure to be even higher, along with the higher margins that come with that increased product revenue. This quarter (fourth) we had a positive cash flow and profitability, and with current sales projections we expect to be profitable the first quarter. So, we're turning the corner, following restructuring and refocusing the company.

What qualifies Time Domain as the Market Leader in Ultrawideband?

Certainly with intellectual property we're the world leader. We set an industry record in 2003 with 26 patents issued, and our closest competitor only had six. We have been issued 87 worldwide patents and we have 92 pending.

Also, staff experience. No one in the market has a Larry Fullerton — who is referred to as the father of modern ultrawideband — and who is still cranking out things for us. There are 300 man-years of ultrawideband experience in the company: physicists, basic designers, software and hardware engineers.

No one else in the industry can put

together \$35 million in revenue, and our current backlog of contracts is \$14 million. This December (2004) we will ship another \$400,000 worth of radios. And the radios we're shipping are the newest, integratable model — the first user-friendly ultrawideband radio, our first of thousands that are pre-sold. We're shipping as many as we can build.

Time Domain has moved from PowerPoint to product. It's not just theory anymore; it's advanced into practical reality. That's why a lot of folks are coming to see us. Partners who are some of industry's major leaders.

Also we have semiconductor experience. We have developed six different semiconductors, and when the FCC was looking at approving ultrawideband, we wanted to have the first FCC approval of an ultrawideband communication device. We received the first and the second approval by the FCC. We've now had four different products approved by the FCC, and there is new one coming out this month, which will be the fifth.

Has the marketplace accepted the practical value of ultrawideband?

There is so much value in ultrawideband, the large companies are now interested. In a recent *Business Week* article, an analyst projects ultrawide-

band revenue in 2007 will reach \$1 billion. With FCC approval, the commercial opportunities have increased. Potential products include perimeter surveillance, tracking, war fighting and firefighting and search and rescue. "Rubble vision" — radar that finds survivors and senses heartbeats in rubble, senses breathing in rubble — that's going to be tremendous product waiting for us, and that is funded by an Air Force contract.

Unmanned command vehicles and area surveillance and tracking — that's going to be big, beginning in 2005.

Who's your competition?

For the sector that we've chosen to focus on — the throughwall sensor network and radar fence and precise location and tracking — there is really not anyone in the ultrawideband space who is doing what we do. The competition is in the high-data, personal network space, and that's why we have chosen not to focus in that area. There is one other company that works government contracts, but they don't have the revenue and intellectual property that we do. Two other companies in our space have gone out of business in the last two years.

Chris McFadyen is editorial director for PMT Publishing Inc.

RadarVision^{®2}™ Introducing the Second Generation Through-Wall Motion Detection Radar for Enhanced Tactical Entry

Law enforcement officers placed in highly threatening situations make split second decisions every day. They need highly accurate information at the touch of a button to aid them in their decision making, and Time Domain delivers. Information that can help identify potential threats and reduce risks is the most valuable of all, particularly if the information reveals unseen dangers like armed suspects hiding in closets, homes, and/or buildings.



A promotional piece for Time Domain