

Providing Services and Software that Converts Acoustic Reflections into 3-Dimensional Images of the Earth to the Upstream Oil and Gas and the booming Shale Industries allowing them to See inside the Earth Before they Drill, Z-Terra is positioned for Growth

**Oil & Gas
Reflection Seismic**

**Z-Terra Inc.
17171 Park Row, Suite 247
Houston, TX 77084
281-945-0000
www.z-terra.com**



**Alexander Mihai Popovici
CEO and Chairman**

BIO:

Alexander Mihai Popovici is Chief Executive Officer and Chairman of Z-Terra Inc., a provider of state-of-the-art geophysical and geological technology, services and software for the upstream oil and gas industry. Z-Terra's vision is to develop the fastest depth processing system in the industry and reduce turnaround time on large seismic projects from 6-8 months to 1 month. He holds Ph.D. (1995) and M.Sc. (1991) degrees in geophysics from Stanford University, and an equivalent B.S. (1985) in geophysical and geological engineering from University of Bucharest, Roma-

nia. He escaped from Romania in 1986 and spent a year in a refugee camp in Austria. Dr. Popovici is the founder and former CEO of 3DGeo Inc. The company was sold in 2008. 3DGeo grew from 2 employees in Palo Alto CA, to an international corporation with offices in Houston TX, Santa Clara CA, Buenos Aires, Rio de Janeiro, and representation in Beijing and The Hague. In 2001, 3DGeo was recognized as one of the Top 100 Innovative Companies by InfoWorld. In 2007, 3DGeo won the Hart E&P Meritorious Award for Engineering Innovation, nicknamed the "Oscar" in Geophysics. In 2008, 3DGeo won the IEEE Spectrum Technology award. Dr. Popovici's industry experience includes work in the seismic processing research department for Halliburton Geophysical Services in Dallas and Houston, and EM acquisition and processing contracts with the University of Bucharest, Romania. He has several patents in the field, over 70 publications in conference proceedings, books, trade journals, and research reports and has given numerous invited talks at conferences, geophysical associations, and geophysical workshops. He is former Chairman and founding board member of Geoscientists Without Borders, an SEG Foundation program that funds humanitarian applications of geophysics around the world. He is a scuba diving instructor, active fencer (ranked top ten in the veteran division of the US), plays paintball with one of the first established pro teams, practices karate, rock climbs, likes to hunt, and is working on his private pilot license.

About Z-Terra:

Z-Terra is a rapidly growing provider of software and service solutions to the upstream oil and gas industry. The Company's goal is to develop the fastest depth processing system in the industry and reduce turnaround time on large seismic projects from 6-8 months to one month. Our success at achieving that goal is largely responsible for the growth that enabled us to become a FastTech 50 winner. We now have the fastest and most accurate depth imaging solutions available on the market.

**Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine**

CEOCFO: Mr. Popovici, what is Z-Terra?

Mr. Popovici: We are a software and service provider company to the oil and gas industry. We help oil companies to look inside the earth, in the same way ultrasound technicians help a doctor see inside a body. Oil companies want to see what the earth looks like inside before they drill, so what they do is put sources of acoustic energy and sensors on the surface of the earth. The sources can be either heavy trucks vibrating on the surface of the earth or shallow wells of about twenty to thirty feet where they blow up about a pound of dynamite. The acoustic waves go inside the earth and reflect back from interfaces and are then captured by the sensors at the surface. There are tens of thousands of sensors that are called geophones. It is the same physical principle as medical ultrasound. We write the software that converts these

acoustic reflections into 3-dimensional images of the earth.

CEO CFO: How does this fit in with traditional seismic or is this a part of seismic.

Mr. Popovici: What we are doing is called reflection seismic imaging. We use the same principles of acoustic and elastic wave propagation to image inside the earth. You can think of an earthquake as being a source of energy that is discharged inside the earth. The principles of waves propagating through the earth are the same for global seismology that deals with earthquakes and reflection seismic imaging. When something happens in China, you can record it in the US and you get waves that go through the core of the earth. In our case the waves just go through a few kilometers to tens of kilometers of the earth's crust, then get reflected by interfaces and we measure them back at the surface.

CEO CFO: Do most oil and gas companies make use of this type of service whether they are with you or someone else?

Mr. Popovici: Yes absolutely! It is an industry that started in the twenties and thirties.

CEO CFO: Why should people choose Z-Terra?

Mr. Popovici: We have some of the most accurate and fast imaging software solutions. There are not that many options out there. You have the big three gorillas in the field, which are WesternGeco (owned by Schlumberger), CGGVeritas and PGS. These are multi-billion-dollar companies and they do their own seismic acquisition. They make a ton of money shooting these surveys and they process them as well. They have tremendous computer installations, hundreds of thousands of CPUs. Then you have companies like Z-Terra, which are small and very technology oriented and started by people who have been in the industry. They are deeply technical. This is where Z-Terra fits in. The group that works at Z-Terra, we worked together in another company called 3DGeo,

which I founded out of Stanford University with two colleagues. We started the company in 1995. We grew it to about 85 people with offices in Silicon Valley, Houston, Rio, Buenos Aires, Beijing and The Hague. In 2008, we sold it. I had a one-year contract to stay with the company that acquired us and then in 2010, I started Z-Terra. Many people left the company after the merger and slowly I picked up the core group. We have fifteen people and eight are ex 3DGeo.

CEO CFO: What made you decide to start the company when you did?

Mr. Popovici: I think this is genetic, you cannot explain it. If you like doing it, then you do it again and again and I like it. It is a lot more fun than working for a big company. I can execute faster on my ideas.

CEO CFO: What did you learn from you earlier ventures that you bring to the table this time around?

“We are a software and service provider company to the oil and gas industry. We help oil companies to look inside the earth, in the same way ultrasound technicians help a doctor see inside a body. Oil companies want to see what the earth looks like inside before they drill, so what they do is put sources of acoustic energy on the surface of the earth and sensors... We write the software that converts these acoustic reflections into 3-dimensional images of the earth”. - Alexander Mihai Popovici

Mr. Popovici: We were really stupid when we started the first company. We spent 25 years in school getting our PhDs and knew everything about technology and nothing about business and clients. You learn the business part, you learn to deal with people, you learn law and contracts, you learn intellectual property and how the big companies work and where you fit in their budget. You know a great deal about technology because that is what you have done for 25 years but then you need to have a good feel about what technology will make money and what technology is still going to be still research technology ten years from now. That is the problem I have had with non-business techies. They are all in love with technology but you need to make payroll twice a month,

so you need to work primarily with what your clients are going to pay for. But you also need to have a component of technology that the clients do not yet understand which is going to have an impact a few years from now. In our case, we were an early developer of this Fast Beam Migration technology that speeds up the processing cycle in the industry. Right now if you take one or two thousand square miles project, it takes six to eight months to process the data. An oil-and-gas company processing team, probably takes two to three years because they do not have the urgency of the service providers. We started Z-Terra with the idea to shorten the processing cycle from six to eight months to one month. In my previous company, 3DGeo, we were writing software and running a processing shop. We were looking at everything we were doing and thinking: “We can speed this up a factor of ten here and a factor of five there.” We did not have

the integrated software to do that, so when I started Z-Terra that was one of our main goals to write software that is much faster than anyone else's in the industry. If you think about the competition, they have very bright people but they work in big corporations and they move slowly. By the time they have their third budget meeting to decide what technology they are going to fund next year, we already have a prototype.

That is why there is a business niche for us. We move fast, we understand the technology very well and we understand what technology is going to make money and what technology is academic. If you live in a university, it is very hard to differentiate. You get excited about some technology and its promises but to make money from that, it may take ten or fifteen years, so you need to balance cash flow with long term leading-edge research.

CEO CFO: Are the people that should know about Z-Terra, aware?

Mr. Popovici: A few are aware. The technical group in our industry is small. We see each other at conferences, at international workshops. The people that I worked with at

3DGeo, which typically are the guys in the technical group in all the oil companies from Exxon to BP, National Oil Companies, service providers, know us. There are over 9000 E&P (Exploration and Production) companies in the US and I am sure that most of them do not know about us. Some are very small companies and many of them do not do 3-D seismic to look inside the earth, it is too expensive. So there is probably a big piece of the market that does not know us.

CEO CFO: How do you reach potential customers?

Mr. Popovici: Slowly, you push the flywheel and eventually you get more speed in your flywheel. You start with one-on-one visits. In Houston, there are a few hundred companies and you visit them all and do technical presentations. You then put ads in the few magazines that we all read. You then go to conferences and start expanding your audience. Outside Houston, you start with the North American and then a European audience. In my previous company 3DGeo we had an office in Rio and in Buenos Aires. Buenos Aires was a mistake for a small company, the market was too small, but Rio was a very good market. You start visiting local conferences and you visit your colleagues from Petrobras and OGX and YXC, which are the local oil and gas companies. We slowly spread the word in South America, which is one of our target markets now.

CEO CFO: How is business today?

Mr. Popovici: Business is good. The oil and gas US industry had a revival with the unconventional shales. This is a market that is going to keep growing. In 2000, 2% of the US gas was extracted from unconventional shales. Now it is 30% and it is growing. This technology will expand in the rest of the world. For the last ten years, it was proven and demonstrated here in the US but now they are starting to drill in Europe, Asia, and South America. These are small pilot projects but they will expand. We have a role in that plus we have role in the normal exploration of typical classic oil and gas where you drill primarily vertical wells, not these horizontal ones that can go for miles.

CEO CFO: Why should the business and investment community pay attention to Z-Terra?

Mr. Popovici: We are going to grow. When we sold 3DGeo, I could see the path to growing to a much bigger company with about \$100 million in revenues, so I think I can do that with Z-Terra. Once we get there, we are not going to stop. You do that by going global early. In our market if you look at the big oil companies like Exxon, Chevron, Shell, BP, they only have 18% of the market. 82% of the market is Saudi Aramco, Petrobras, Statoil, Pemex, Petronas, national oil companies (NOC). Saudi Aramco is three times bigger than Exxon, and is one of our good clients. The faster you can go and start selling to them, accessing their market, the faster you can ex-

pand. That was a lesson I learned with 3DGeo, our growth accelerated when we decided to expand internationally. You need a base in Houston because it is the energy capital of the world. A lot of technology development in the industry starts here, there is a concentration of companies and clients unlike anywhere in the world, but once you get to \$20 and \$30 million in revenue in Houston, you should start expanding. You have an office in Rio that you can grow to \$15 or \$20 million in a few years, and then you have to cover the Middle East market. You have to choose Bahrain or Dubai and that is another \$10 or \$15 million dollars in revenue. You have to cover the European market from London or The Hague or from Oslo, which is another \$20 to \$25 million in revenue. You have to cover Eastern Europe and Russia and I would probably cover that from Romania because I was born in Romania. Then Southeast Asia, Singapore, which is the place you want to be in our industry, and then Australia. In China you would probably not want to go in on your own, you just want to partner with a company. I have no business experience in Africa, but that is another market that we need to cover. It is \$20 million here, \$15 million there. You have enough centers, you get to \$100 or \$150 million in revenue and then you become a power.



Z-Terra Inc.
17171 Park Row, Suite 247
Houston, TX 77084
281-945-0000
www.z-terra.com