
Looking beyond space

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The online logo for Integral Systems promises “complete satellite ground system solutions,” which has been the company’s expertise for nearly three decades. Enter John Higginbotham, the Harvard business-school graduate who made a fortune in the 1990s raising money for space start-up companies.

Higginbotham agreed to come out of retirement last year with the goal of expanding the revenue of the 600-person company after a tumultuous but ultimately failed acquisition bid.

Higginbotham believes Integral, based in Maryland, can best grow by carving roles in non-space programs such as the U.S. Army’s Future Combat Systems. Networking should be networking whether the domain is space, ground or “potentially subsurface,” Higginbotham says.

A jumping off point to the new domains, Higginbotham believes, could be the company’s work for the U.S. Air Force to develop a Rapid Attack Identification Detection Reporting System (RAIDRS), a network of sensors and software for pinpointing when and where an enemy is trying to interfere with military satellite transmissions.

Looking beyond the space business is a surprising turn for someone who left computer-giant Hewlett Packard in the 1980s to sell satellite launch insurance and whose father, Walter, helped pioneer the rockets that launch those satellites. Higginbotham followed up his insurance business by founding SpaceVest, a company that raised capital for

Analytical Graphics Inc. and other start-ups.

Integral's board has given Higginbotham three years to prove that he knows about more than space.

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"If I can't make enough impact in three years to motivate the board to renew the contract I should be fired," Higginbotham said in an interview with editor Ben Iannotta.

Q. You have a short-term, three-year contract. What's your mission here at Integral?

A. Actually, three years might as well be next century. We're a publicly traded company and we have investors in a difficult financial market, so we're living in a quarter-by-quarter world.

Customers love this company. [Integral has] become dominant in the [command and control] world for satellites. I came out of retirement because I strongly believe the business model of Integral — integrating commercial capabilities and practices to the extent practical — is a business model that is going to characterize the future, both in the defense community and the commercial world.

Q. What was the situation Integral Systems faced when you arrived?

A. There was a quisitive interest on the company prior to me getting here. They didn't sell, but I wanted to be convinced that this board and this company were interested in a growth scenario. A lot of people look at my background, being in the venture side, and say, "Ah! You've got a private equity guy who's going to come in, shape it up and flip it." You've got to understand that venture capital is the antithesis of buyout. Venture capital invests in the long term, on growth-oriented strategies. That's kind of how I'm built.

Q. You've used the "d" word — depression — to describe the economy. How much risk is there that some critical industry player for the Pentagon or intelligence community is going to fail?

A. Risk of failure for a quote "key defense contractor" I don't believe is high. For the most part, the key contractors are well-run organizations, big organizations. Many of them have strong and substantial [contract] backlogs, as we do. Even in stressed financial times there are certain basic functions and basic needs that must be fulfilled. Clearly national security is one of those. A lot of things are going to stop before national security goes away. In fact, arguably in stressed times, the need for national security goes up, not down.

Q. How is the U.S. aerospace industry performing in your opinion?

A. If you look at the aerospace and defense business in the '70s and '80s, most of them were characterized by robust commercial operations and robust defense operations. DirecTV came from Hughes Aircraft Company, an organization that was doing some of the most advanced weapon systems in the world. You had the ability to cross-fertilize innovations, technologies and practices.

In the '90s and early part of the 2000s we got into this mentality of: focus on core customers. The players that defined the aerospace and defense business basically divested their commercial operations. So, you divest commercial operations; lose that cutting edge, lean-and-mean mentality. All of the sudden your programs start to lengthen, you miss requirements and go over budget.

Q. You have a reputation as an entrepreneur. How do you define an entrepreneur?

A. Innovative, growth oriented, leadership, knowledge, ambition, commitment, passion. These are attributes of entrepreneurial behavior.

Q. I didn't hear stockholder value.

A. That's a derivative. If you can put all the right components together, you end up creating a value proposition that is compelling to customers, that solves critical problems, which means you can price it at a level that creates margin.

Q. What's not being provided in the C4ISR world today?

A. We need better solutions for warfighters. C4ISR is basically the defense industry term for advanced robotics. If you really think about what it takes to do advanced robotics, it's the ability to communicate and control with a device remotely. That's what we do. If we take that concept and expand it to the entire battlespace, regardless of domain, regardless of geography, that's a vision that would be compatible with the vision behind the Future Combat Systems.

We may actually be able to deliver the vision much sooner.

Q. John Young, the Pentagon acquisition chief, wants more prototyping. Can you prototype something like a network?

A. Absolutely. That's what we're doing with RAIDRS. We're showing how you can take certain commands or certain capabilities and tie them together in a control center, wherever it needs to be, to get actionable information.

Q. What makes it a prototype?

A. In a prototype, you're taking certain nodes of a network and demonstrating how you might use those nodes

differently or more efficiently. Then you scale that [approach] network wide. The next step for us [on RAIDRS] would be to tie-in a broader range of [military satellite] capabilities. What we have done is taken some specific programs, some specific capabilities, specific objectives and demonstrated a network architecture that can allow you to more cost effectively deliver better types of information, that are actionable, to give you a much broader situational awareness.

Q. Give me a notional example. What kind of task would a person on the ground carry out using this interoperability with all these satellite platforms?

A. Let's say you've got communications going on where there's interference, there's an anomaly. We can isolate that problem. In an operational sense, we can help optimize, from a bandwidth perspective, across multiple platforms. Right down to the packet level. It could ultimately lead to greater efficiency across a dissimilar platform environment.

Q. If there's some kind of interference on the satellite link, you could switch to a terrestrial link?

A. Potentially. We can help identify the nature of the interference. Help locate it. That's called direction-finding technologies. It's kind of where geospatial technologies comes in.

Q. If you look at the world of UAVs, some of the terminology is similar to space terminology. UAV operators talk about orbits. Some people call airships atmospheric satellites. Those things all need networks. Is that an area you're exploring?

Q. UAVs could be a growth area.

A. That could be a growth area for us, absolutely. I think it might be interesting to note we actually have a fairly substantial role in UAVs now.

Q. Since 9/11, we've heard a lot about intelligence fusion centers. Can they really save the day, and what can Integral Systems do to help?

A. We're already helping. We're laying in some of the physical and logical architecture that can allow [those] to come into existence more efficiently.

Q. Advocates in the U.S. had to fight for money to test a network of radiological detectors in ports. Is there enough emphasis in the networking arena on the things Homeland Security needs?

A. That's ultimately up to Homeland Security, and I'm not going to profess any direct knowledge there. I do think we have capabilities that can help with that. We are able to rapidly pull together commercial available capabilities, both ones that we have as well as ones that we procure. We architect and engineer that into an application that's unique to a customer, and deploy it in a very timely, cost-effective way. It's that blending of commercial practices with systems

engineering skills that is going to be required going forward.

Q. What do you do, go down to RadioShack?

A. Well, no, we wouldn't go to RadioShack, but there are many commercial off-the-shelf products that have equal or better capabilities than those that are created through development contracts. We can take advantage of stuff that already exists and focus scarce development dollars on those specific things that make the integration of those commercial capabilities applicable to a specific customer's problems.

Q. In the C4ISR world, how can that improve efficiency?

A. Imagine if every time somebody wanted a Chevrolet, you had to give a development contract saying, "Build me a Chevrolet from the ground up." Every Chevrolet would cost \$50 million. It's crazy. So what you do is you figure out what aspects of an outcome allow you to take advantage of commercial practices. Once you've done that, you figure out what little things you need to add on to uniquely satisfy a customer's requirements. In the ISR world, it's like the GeoEye and DigitalGlobe data buy. Why reinvent the wheel? [The National Geospatial-Intelligence Agency] can buy satellite data at commercially available prices off the shelf. For the vast majority of the requirements, that's sufficient.

Q. NGA wanted the Broad-Area Space-based Imagery Collector satellites, so somebody must not have thought it was sufficient.

A. Commercial off-the-shelf will never satisfy a hundred percent of defense requirements. It's really finding that mix. The percent of requirements that can be met with commercial off-the-shelf versus the percentage of requirements where what you need doesn't exist and you have to develop it.

Q. How could Integral Systems products improve geospatial intelligence?

A. We have a number of capabilities through our RT Logic subsidiary in particular that have robust signal analysis capabilities that include direction finding, signals intelligence. All those then are tied in with various geo-locating capabilities. Bear in mind, Integral has played a big role in GPS in its history. This is all done through ground networks. We're characterizing the space environment, both physical and virtual. We're demonstrating these capabilities now, or elements of these capabilities, in our RAIDRS contract, and our [Command and Control System-Consolidated] contracts, both with the Air Force.