



Gyrfalcon Agricultural Analytics Platform (A)

From: Jordan McGill, SVP of Gyrfalcon Ventures

To: JCE Intern Class

Sent: Wednesday, September 25, 8:00am

Subject: Recommendations for Gyrfalcon Ventures

Welcome to Johns Creek Enterprises! On behalf of the senior management team, let me extend our hopes that you have a very rewarding and successful career here.

As you know, we're a small, privately-owned conglomerate. We've been growing rapidly through a wide variety of acquisitions, and last year our net income across the portfolio was \$12 million. All of our business units tend to have a technology component, but they range from innovative kitchen products for home use to polymer coatings for manufacturing.

For the first day of your internship, they've sent you to me. I run our newest business, Gyrfalcon Ventures, which we just created in response to an opportunity that suddenly fell into our lap.

And by "just created" I mean just this week. This is a new industry for us and we can really use your help to figure out how to get a fast launch in the right direction.

New Business Opportunity

As part of an acquisition that closed last week, we learned that we now own international market rights to a new technology. We have the option to develop and exploit business opportunities outside the US (the 50 states, DC and US overseas territories) and Canada. The problem is that this particular technology is unfamiliar to us, and it wasn't part of the core assets we were aiming to purchase in the acquisition. It's a windfall, so to speak, and it's outside our core competence.

The other issue is that we don't really plan to invest significant R&D in this technology. It's in a rapidly-developing field and we believe the value of our technology will diminish very quickly due to actively innovating competitors. Extracting potential value from these rights depends on acting at once. We don't need to be perfect, but we do need to be *fast*.

First, as a bit of background, watch the first few minutes of an interview we just discovered. Here's Chris Anderson, former editor of WIRED magazine, now the CEO of a company called 3D Robotics. They make a complementary product:

This case was originally prepared by Professor Patrick Noonan of the Goizueta Business School of Emory University, as the basis for class discussion, rather than to illustrate effective or ineffective handling of a management situation. Parts of the case have been modified by Associate Dean Lynne Segall 2015-2019.

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<https://www.youtube.com/watch?v=-A5RBW44JMo>

“Agriculture is a ‘big data’ problem without the ‘big data.’” Drones as farm equipment, saving the environment, and feeding the world – these are remarkable assertions! But they sounded very plausible to us, so we created Gyr Falcon Ventures to try to make some money in this space.

The Technology

The particular technology that we own the rights to is usually integrated into a type of drone called a “quad-copter” or “quad-rotor” – more like an alien helicopter than the “fixed wing” flight platform that Anderson sells. (His company does make rotor drones, too, by the way.)

This technology serves what they’re calling “precision agriculture” or “precision farming.” We have access to a superior way to gather and use data from fields of crops. Using multi-spectral sensing – wavelengths of light outside our own eyes’ visual range, such as infrared – we can detect the condition of plants and soil, assess the growing conditions, and immediately highlight problems or changes. Farmers use the results of these scans to target the application of water, pesticides, herbicides, or fertilizers. They also might be able to detect irrigation leaks or intrusions by animals (or humans), and plan maintenance and repair tasks.

What exactly does the product do? It’s an integrated system of cutting-edge analytics technologies:

- **Gathering Data:** Hyper-spectral sensors gather enormous amounts of data, spanning a very wide range of wavelengths of light. Our stuff can see very well!
- **Moving Information:** Massive-capacity but ultra-lightweight data capture, and high-speed communication of the sensor data to the base station. We can move a lot of data instantly.
- **Supporting Decisions:** Sophisticated and rapid processing of the data to isolate even very subtle problems, across a wide variety of potential issues. Our patented algorithms can make instant recommendations based on the user’s available actions.

The sensors and radio links are rugged, more than the flight platforms they ride on. The software sits safely at the base station. We believe it will take 3-5 years for anyone to surpass our capability and speed. We’ll have the smartest platform for a while. Another key market advantage is that our on-board technology is very small and lightweight.

The flight systems that dominate the agriculture market tend to be large and expensive, sometimes based on military-grade technology. A lot are fixed-wing aircrafts that can’t hover and zoom in like a quad-rotor. These are out of reach for many applications. For example, the Yamaha RMAX is a mini-helicopter that also can spray stuff on what it finds. But it costs \$100,000, requires four months of training, and in fact is subject to international arms regulations, so it can only be leased, not purchased.

Our technology fits on very inexpensive flight platforms that already exist in the market. We currently have it integrated into a popular sub-\$1,000 quad-rotor system that already comes with super-easy flight controls – no extensive training required, more-or-less point-and-click flight planning, anytime-anywhere operation, controllable via any PC or tablet or even an iPhone. Inexpensive replacement parts, good tech support, and so forth.

Furthermore, price-performance of flight systems keeps improving with technology advances and international competition. (In the video, Anderson talks about how some Chinese companies cloned his new models the day after they were introduced.) Next generation flight systems will cost a fraction of what they do today.

Our product's size and weight mean it will work with almost any new flight platform that comes along. In fact, our product will benefit from the increasing flight times, reliability, ease of use, and mission automation that other flight systems will feature in the years to come.

We can offer the complete Gyr Falcon Agricultural Analytics Platform (GAAP) – sensors, communications interface, and base station software – in whatever quantities we can manage to sell. The manufacturer has geared up for US sales, and they've assured us that they will have capacity for any overseas volume. (We don't sell the drone.)

We will have to pay the manufacturer approximately \$100 per unit that we sell; anything we can get above that, we keep (to pay our other costs, and ultimately our shareholders). We won't need to keep inventory, but we'd need to ship the units to customers. We don't know the shipping dimensions, but we can safely assume it's under 10 pounds, with box dimensions less than 2 feet.

How can we exploit this and quickly get value from it? It's a big world and we don't know where to look for opportunities. We need to go where agriculture is, obviously, but especially where the farms tend to be commercial and where the farmers would benefit from being able to target their costly (or in the case of water, possibly scarce) interventions.

Contributing Factors

Overall agricultural market size and farm scale are definitely factors going forward. There are other issues we've identified, and you might think of others as you do some research:

- **Ability to pay:** The much lower price point for the flight systems plus our GAAP package should open up a lot of possibilities, but not all farmers can spend much, if anything, for additional tech. Is our target market segment *only* the big, corporate farms? We don't think so... but it's also not likely to be everyone with a patch of carrots or potatoes.
- **Support for the technology:** This stuff seems easy from our educated, tech-savvy perspective, but it does require some skill to operate, to maintain, and to apply the results it delivers. Also, access to infrastructure matters: reliable electric power to recharge batteries, access to technical support if needed, and of course connection to a smart device.
- **Crop alignment:** Different types of crops have different needs. Also, the physical landscapes they inhabit vary widely. Our sensors are great, we're told, and our upgradeable software can and will continue to handle a wide variety of settings, but some crops may be better-suited than others for exploiting rotor-based aerial scanning.
- **Ease of doing business:** Ease of entry from a US-based company, good contract law, transparency in relationships, protection of intellectual property, reliable banking, and ability to get money out of the country influence our strategy. There are published indexes that might be worth looking at.
- **Government regulation.** In the US, regular commercial use of drones has only very recently become legal, and it's still heavily regulated by the Federal Aviation Administration. Among other things (see link for details: https://www.faa.gov/uas/media/Part_107_Summary.pdf), they can't weigh more than 55 pounds, or rise above 400 feet, or fly outside of direct line-of-sight operation. Other countries might be very restrictive about operations, or very open, or – like the US – very much in transition.
- **Management access...and who knows what else.** Your research will reveal some *other* factors that might influence this global opportunity screen. Plus, remember that we do have to manage things from here in Atlanta – so don't send everyone to the South Pacific or someplace remote or

hard to contact unless it's an *especially* good opportunity in other ways. Remember GAAP isn't a core business for us, so keeping travel and communication simple is a factor.

Next Steps

You've got to get to work, I know, so let me step back and summarize what we need from you.

We've got personnel who can get on the phone this afternoon – or get on planes tomorrow – to start opening doors, building relationships, finding partners, prospecting for distributors and even identifying specific customers. We just don't know where to point them. Tell us where – and why. (That includes some sense of the market size – roughly how much effort should we be throwing against this opportunity?)

We also don't know the most important questions we will need to answer, or what we should work on next. What are the most important issues we need to be on the lookout for, what steps would you take to tackle them, and what would you need from us to help you?

In order to be sure any distractions in building this business are worth it, we need to be sure this initiative is a good investment. Considering the looming competition, that means something that generates an attractive Net Present Value (NPV) based on an assumption of a three-year window.

While I will be your primary contact, I share overall sponsorship of this initiative with our COO, Pat Johnson. Other members of the leadership team who will potentially be involved are Connor Tanis (CFO), Taylor Ingram (CMO), and Cameron Swift (CEO). This group will expect rigorous analysis, thorough research, and evidence-based recommendations from you.