Operational Due Diligence Of Startup Green Building Materials Company: Assessing Manufacturing Capabilities And Scalability To Support Aggressive Growth Projections

The Challenge: GreenCo, a startup manufacturer of green building products, was under an exclusivity arrangement with one of our client PE firms, who was in the process of conducting detailed due diligence before finalizing the deal. At $6MM revenue, GreenCo was a small company but management was projecting to grow the top-line to $30MM within a year and to $90MM within 5 years. The product potential was attractive – green building material manufactured from harvested byproduct, with excellent strength characteristics that facilitated modular building assembly to reduce construction costs. However, the deal team was uncertain how real management's sales projections were and whether or not the company could ramp up production cost effectively to meet projected demand. Given this uncertainty, the deal team asked Gotham to perform operational due diligence focused on the cost-efficient scalability of manufacturing operations. Simultaneously, the deal team would conduct customer interviews to validate the sales pipeline.

The Partnership:

Analysis: As a starting point, Gotham visited the plant to interview managers and observe manufacturing operations first-hand. We quickly established that GreenCo was still very much in startup mode and that the production processes were not well evolved (e.g., operational data were virtually non-existent, projected financials were inconsistent with operational realities).

To establish a fact base on throughput and capacity, material cost and utilization, labor requirements and productivity, equipment capabilities and controls, and cost structure, the Gotham team: (1) spent significant time observing manufacturing operations to map the manufacturing process and establish cycle times, labor requirements, waste, and downtime; (2) reviewed financial projections and assumptions with the CFO; (3) collected available data on production, sales, quality, purchasing, and costs; and (4) built an operating cost model incorporating bottom-up calculations of labor, material, overhead, and SG&A costs and throughput. Gotham then reviewed this fact base with management to note and where possible resolve inconsistencies between the observed as-is plant capabilities and projections.

Management projections had indicated that the existing plant could service $30MM in revenue at full capacity. Based on this assumption, GreenCo would need to set up 2 additional plants to meet projected 5-year growth ($90MM). Using our operating cost model, the Gotham team projected the capacity and cost structure of the existing plant and ran multiple growth scenarios. The team also modeled several different cost structure scenarios: with current management projections; based on observed (as-is) performance; based on the execution of operational improvements; and with additional capital investment.

Findings: While production mill equipment appeared robust, the manual assembly processes were unsophisticated, imbalanced, and driving throughput issues. Gaps and weaknesses in GreenCo's operational basics included lack of standard processes and reporting, poor understanding of cost drivers, and inability to schedule manufacturing flow. These issues were contributing to low utilization, labor inefficiencies, and excessive scrap. Consequently, management's financial projections were overstated given the reality of as-is capabilities. In short, significant improvements in operational basics and capital investments (sooner rather than later) would be required to support management's aggressive growth projections.

Recommendations: Gotham proposed two improvement scenarios to augment capacity to meet growth targets and increase margins:

- Improving operational basics by establishing process controls, tracking waste, rebalancing the assembly lines, leveraging volume of purchases, and establishing a lean overhead staffing model to achieve a 16% reduction in cost and enable the plant to reach the stated capacity to service $30MM in revenue
- Investing in capital equipment and automation to improve cycle times so that the plant could support up to $50MM in revenue, pushing back the need for an additional plant by more than a year.

Estimated EBITDA Improvement Opportunity Ranges From $4.3-5.4MM Or 14-18% Of Sales Versus As-Is Performance, Depending On Level Of Changes Implemented

	As-Is Performance		Operational Basics		Δ To As-Is		Equipment Upgrade/ Automation		Δ To As-Is	
Sales	$ 30,583		$ 30,583				$ 30,583			
Material Cost	$ 13,633	44.6%	$ 12,956	42.4%	$ (677)	-2.2%	$ 12,956	42.4%	$ (677)	-2.2%
Direct Labor Costs	$ 2,370	7.7%	$ 1,952	6.4%	$ (418)	-1.4%	$ 1,656	5.4%	$ (714)	-2.3%
Overhead Personnel	$ 2,172	7.1%	$ 1,409	4.6%	$ (763)	-2.5%	$ 1,086	3.6%	$ (1,086)	-3.6%
Overhead Expenses	$ 1,607	5.3%	$ 1,084	3.5%	$ (522)	-1.7%	$ 804	2.6%	$ (803)	-2.6%
Overhead Dep., Amor., & Interest	$ 345	1.1%	$ 118	0.4%	$ (227)	-0.7%	$ 98	0.3%	$ (247)	-0.8%
COGS	$ 20,126	65.8%	$ 17,519	57.3%	$ (2,607)	-8.5%	$ 16,599	54.3%	$ (3,526)	-11.5%
Gross Margin	$ 10,457	34.2%	$ 13,064	42.7%	$ 2,607	8.5%	$ 13,984	45.7%	$ 3,526	11.5%
SG&A Personnel	$ 2,457	8.0%	$ 1,328	4.3%	$ (1,129)	-3.7%	$ 1,286	4.2%	$ (1,172)	-3.8%
SG&A Expenses	$ 1,916	6.3%	$ 1,148	3.8%	$ (768)	-2.5%	$ 958	3.1%	$ (958)	-3.1%
SG&A Dep., Amor., & Interest	$ 469	1.5%	$ 217	0.7%	$ (252)	-0.8%	$ 194	0.6%	$ (274)	-0.9%
Commissions @ 5%	$ 1,529	5.0%	$ 1,529	5.0%	$ -	0.0%	$ 1,529	5.0%	$ -	0.0%
Total Expenses	$ 26,497	86.6%	$ 21,740	71.1%	$ (4,757)	-15.6%	$ 20,567	67.2%	$ (5,930)	-19.4%
Net Income	$ 4,086	13.4%	$ 8,843	28.9%	$ 4,757	15.6%	$ 10,016	32.8%	$ 5,930	19.4%
EBITDA	$ 4,899	16.0%	$ 9,177	30.0%	$ 4,278	14.0%	$ 10,308	33.7%	$ 5,409	17.7%
Capacity	Plant 1 @ 100%, Plant 2 @ 37%		Plant 1 @ 100%		Mitigate Need For Second Plant		Plant 1 @ 61% (depending on Mill top speed)		Mitigate Need For Third Shift	

The Outcome: The deal team's customer interviews indicated that management projections of new business were overly optimistic. Given the small size and startup mode of the company and a likely extended timeframe for reaching the projected sales level, the PE firm decided that the company would not meet return targets; thus, it would be premature to invest in GreenCo.