

Case 22: Dark Sky Co.

By: Sean Burrow (Kellogg Class of '11), Edited By: Ameer Mallick (Kellogg Class of '12)



Case Question

- Our client, Dark Sky, is a small manufacturer of unmanned (i.e. remotely piloted) data collection aircraft. Dark Sky produces the Assessor, an aircraft originally designed for unmanned weather exploration. In 2003, the United States military began purchasing Assessors for use in Intelligence, Surveillance and Reconnaissance (ISR) missions. The Assessor is profitable, but sales have stagnated and the client wishes to grow.
 - What are some steps Dark Sky could take to achieve growth?*

Case tracker

- Industry:**
Industrial Goods – Aerospace and Defense
- Level of Difficulty:**
Easy/Medium
- Case Format:**
Growth Strategy
- Concepts Tested:**
 - Marketing Strategy
 - Creativity

Fit Questions

- Spend first 15 min on fit**
- “What was the hardest piece of feedback you ever got? What did you do about it?”
 - “How would your classmates and/or teammates describe working with you?”

Guide to interviewer

- This case intentionally uses terminology that may not be familiar to the typical MBA student. This is meant to challenge the interviewee to dismiss superfluous information and to focus on the business problem.
- After asking the initial question, engage in a qualitative discussion regarding organic and inorganic growth opportunities.
- Knowledge of the Aerospace and Defense industry is not necessary – creativity is encouraged.

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Quants.

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Structure



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Creativity

Clarifying answers and case guide

Clarifying answers to provide if Asked

Product:

- Dark Sky designs a unique aircraft that is launched from a catapult device; the aircraft can be launched from ships at sea or from harsh terrain (e.g. desert, mountains).
- Dark Sky only sells the Assessor, but has designed prototypes specifically for military operations.

Company:

- The firm has additional capacity and is positioned to strengthen any division of the workforce, if required (e.g. sales force, manufacturing, R&D).
- Competition
- There are approximately 20 competitors that manufacture unmanned aircraft.
- Though too small to purchase a competitor, Dark Sky has been considered an acquisition target. Dark Sky's lack of growth in recent years concerns potential buyers.

Customer / Price

- Dark Sky's only customer is the U.S. Military.
- Dark Sky has a Cost-Plus-Fixed-Fee contract with the U.S. Military for Assessor sales:
 - The contract has been extended in the past and is up for renegotiation; the Military has agreed to a marginal fee (i.e. price) increase to account for inflation
 - Contracts for new aircraft will be structured similarly

Interviewer Guide to case and handouts

This case is meant to stimulate the growth conversation and is designed to funnel the interviewee toward a new product launch.

Exhibit 1 – Provide following growth discussion

- The military started purchasing the Assessor in 2002. The price of the aircraft has remained constant at \$100,000 per unit. Throughout the past decade, The Assessor has been Dark Sky's only source of revenue.

Exhibit 2 – Provide following Exhibit 1 calculations

- Dark Sky has developed several aircraft prototypes designed specifically for military missions. The company has the capability to continue producing the Assessor and to introduce one new aircraft.
 - SeaBird is specially designed for maritime (i.e. Naval) operations and can be sold to the Navy for \$220,000 per aircraft.
 - SandBird is specially designed for desolate land-based operations and can be sold to the Army for \$210,000 per aircraft.
 - JointBird is designed as a compromise for Army and Navy operations and can be sold to either service for \$180,000 per aircraft.
 - The Military has agreed to a 10% Assessor price increase. If Dark Sky only produces the Assessor, forecast sales remain flat (i.e. 50 aircraft annually). The introduction of a new aircraft will have a negative impact on Assessor sales

– *Continue to next page for further detail of the analysis to be performed*

Key elements to analyze

Current Revenues & Growth Strategy

- **Exhibit 1:** a) How many units were sold in 2010? b) What was the growth rate from 2002 to 2006?
- What are some steps to achieve growth (original question)

Notes to interviewer

- **Exhibit 1** should be treated as a math warm up. **Price = 100K/Unit**
- **Organic Growth** – the interviewee should consider internal options to could stimulate growth. Some potential examples include:
 - **Increase penetration** – negotiate additional Assessor sales to the military.
 - **Product development** – develop new products that may appeal to the military (e.g. new aircraft, training services, aircraft accessories / add-ons).
 - **New market entry** – sell the Assessor in international markets or additional domestic markets (e.g. Border Patrol, police, news channels)
 - **Diversification** – develop a new product to serve a new market.
 - **Increase / Reduce prices** (based on elasticity of demand)
- **External growth** – the interviewee should consider growth options using external resources. Some potential examples include:
 - Joint Venture – contract with a firm to increase market accessibility or to develop a new product beyond the capability of Dark Sky.
 - Merger / Acquisition – acquire a new firm to add additional capacity and/or product mix. Because Dark Sky is relatively small in the Defense industry, consider becoming an acquisition target.

Opportunity Assessment

- **Exhibit 2:** To maximize short-term growth, which aircraft should Dark Sky produce?

Notes to interviewer

- **Exhibit 2:** To maximize growth, Dark Sky should focus on maximizing revenue.
- To calculate the revenue for each scenario, the interviewee should add Assessor sales to the sales of the new product.
 - Assessor sales are based on:
 - 50 units sold with no new product launch
 - Cannibalization forecast specific to each new product launch
 - \$110,000 per aircraft
 - New product sales can be easily calculated using shortcuts. For example:
 - SeaBird: $\$220k * 100 = \$22m$... then half of this
 - SandBird: $\$210k * 100 = \$21m$... then half of it and add (10% of \$21m)
 - JointBird: Add to get 90... then $\$180k * 100 = \$18m$, subtract (10% of \$18m)

Math Solutions

Math Exhibit 1

- How many units were sold in 2010?
 - **Answer:** 50 units or $\$5,000k \div \$100k/\text{unit} = 50$ units
- What was the growth rate from 2002 to 2006?
 - **Answer:** $900\% \text{ o } (\$5,000k - \$500k) \div (\$500k) \times 100 = 900\%$

Math Exhibit 2

- To maximize short-term growth, which aircraft should Dark Sky produce?
- Answer: **JointBird**
 - Assessor Sales (Units, Revenue):
 - No new product = 50 aircraft, **\$5,500,000**
 - With SeaBird = $50 + (50 * (-40\%)) = 50 - 20 = 30$ aircraft, **\$3,300,000**
 - With SandBird = $50 + (50 * (-70\%)) = 50 - 35 = 15$ aircraft, **\$1,650,000**
 - With JointBird = $50 + (50 * (-90\%)) = 50 - 45 = 5$ aircraft, **\$550,000**
 - New Product Revenue:
 - SeaBird = $50 * \$220,000 = \mathbf{\$11,000,000}$
 - SandBird = $60 * \$210,000 = \mathbf{\$12,600,000}$
 - JointBird = $(38 + 52) * \$180,000 = 90 * \$180,000 = \mathbf{\$16,200,000}$
 - Total Revenue:
 - Assessor Only = \$5,500,000
 - Assessor and SeaBird = $\$3,300,000 + \$11,000,000 = \mathbf{\$14,300,000}$
 - Assessor and SandBird = $\$1,650,000 + \$12,600,000 = \mathbf{\$14,250,000}$
 - Assessor and JointBird = $\$550,000 + \$16,200,000 = \mathbf{\$16,750,000}$

Solution and recommendations

Solution & Recommendations

- Based on 2011 forecasted revenue alone, Dark Sky should introduce the JointBird to the U.S. Military in order to boost short-term growth. However, there are several connected issues that Dark Sky should consider to include profitability, long-term revenue forecasts, competitive response, etc.

Bonus/Guide to an Excellent Case

- An excellent interviewee will note:
 - How quickly could Dark Sky start manufacturing a third model (i.e. can Dark Sky produce SandBird this year, and be producing SandBird and SeaBird the following year)? If so, what are the revenue implications?
 - If Dark Sky produces JointBird, is \$550,000 in Assessor revenue worth the associated cost to produce the aircraft? Should resources be allocated to another project?
 - How profitable are the four aircraft models in comparison? Note: Because Dark Sky has a Cost-Plus-Fixed-Fee contract, profitability for each aircraft is likely equivalent. For this reason, Dark Sky should focus on maximizing the number of aircraft sold. • How much and how long is the payback period for the investment in manufacturing each type aircraft?

Exhibit 1

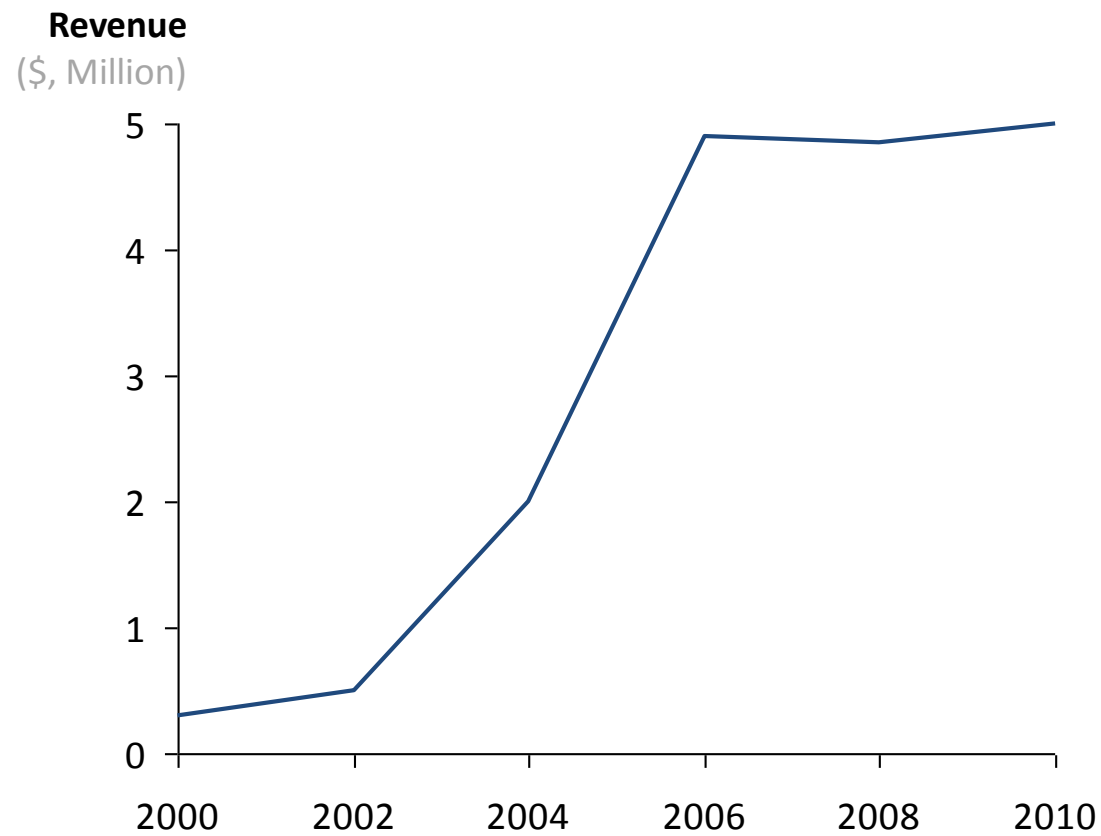


Exhibit #2

New Product Sales Forecast, 2011

New Product Offering	New Product Sales (aircraft)		Assessor unit sales lost due to cannibalization
	Navy	Army	
SeaBird	50	0	40%
SandBird	0	60	70%
JointBird	38	52	90%

	Price Per Aircraft
Assessor	\$110,000
SeaBird	\$220,000
SandBird	\$210,000
JointBird	\$180,000