

Case 5: Syzygy Supercomputers

By: Edwin Van Dusen, Brian Fox and David Welch (Kellogg Class of '04), Edited By: Uri Kalir (Kellogg Class of '12)

Case Question

- Syzygy Supercomputers is a large international fully-integrated computers and communications company with annual revenues of approximately \$20 billion U.S.. In the past several years, the company has seen a steady decline in profits.
- The CEO has asked us to look into this problem. How can Syzygy Supercomputers get back on track?

Case tracker

- **Industry:**
Tech & Telecom
- **Level of Difficulty:**
Hard
- **Case format:**
Improving profitability
- **Concepts being tested:**
 - Competitive analysis
 - Operations

Fit Questions

Spend first 15 min on fit

- What is the single most important detail in your resume?
- What is the least important detail in your resume?
- Why is the lifestyle of this job right for you?

Guide to interviewer

- This case is about a tech company undergoing a decline in profitability, despite a strong competitive position. Syzygy has been overinvesting in R&D relative to its returns and performance has suffered as a result.
- The interviewee is expected to go through these general steps while presenting a solution:
 1. Confirm profitability issues and ask to see historical revenue and cost information.
 2. Ask to see market position and related data.
 3. Realize that this case is going to be decided based on information regarding the products.
 4. Identify the main issue affecting profitability – the company's R&D spending

3

Quants.

7

Structure



Profit Imp.
Comp. Anl
Ops.

Clarifying answers and case guide

Clarifying answers to provide if Asked

General Information on Syzygy

- Only the information that has already been given. Other information currently unavailable.

Competitive Dynamics

- There are several players in the market, but everything has remained stable from a competitive standpoint.

Profitability drivers

- COGS, SG&A, and other profitability factors are on-par with Syzygy's competitors (except for R&D, about which the candidate should ask specifically).

Interviewer Guide to Case

A sample case structure would include the following:

- 1) Examination of historical performance to deep-dive declining profits.
- 2) Discussion of market dynamics and competitive positioning.
- 3) Deep-dive into drivers and profitability, ultimately leading to a discussion of SG&A

Necessary Information that should be given only when specifically asked for by interviewee:

- Historical costs, revenues and profits – exhibit 1
 - Note that the interviewee should be asking for historical trends in the company's profitability. If they are asking only for current profitability, interviewer should point them in the direction of historical trends
- Market data – exhibit 2 followed by exhibit 3
 - Interviewer should give the interviewee a few seconds to understand slide 2 and then handout slide 3. Interviewer should ask interviewee which product in slide 3 is which (on slide 2).
- R&D spending data – exhibit 4 and exhibit 5
 - The candidate will naturally ask about potential drivers of profitability (S&GA expense, COGS, etc.).
 - These exhibits should only be given once the candidate has identified R&D as a driver of Syzygy's profitability.

Key elements to analyze

Interpreting Exhibit 3

- The X axis represents absolute market share (AMS), which correlates with the height of Syzygy's rectangles in exhibit 2.
- The Y axis represents relative market share (RMS), calculated as Syzygy's market share divided by the market share of the closest competitor. If Syzygy is the market leader, this number is greater than 1. If Syzygy is not the market leader, its market share divided by the market leader's share will be lower than 1. This correlates with the the ratio of the height of Syzygy's rectangles to that of competitors' rectangles for each product in exhibit 2.
- The diameter of the bubbles is driven by Syzygy's total revenues in that category, comprised of its market share in the category multiplied by the category's size.

Notes on Exhibits 2 & 3

- Correctly interpreting slides 2 and 3 will lead the candidate to correctly identify the products on slide 3:
 - Product #1 is custom applications
 - Product #2 is supercomputers
 - Product #3 is telecom equipment
 - Product #4 is satellites
 - Product #5 is operating software

Notes on Exhibits 4 & 5

- The key insight in exhibit 4 is that Syzygy is the only major competitor in this industry whose R&D spending is below the "normative band"
- We would expect each company's degree of technical leadership to go up as it invests in R&D, but Syzygy, with slightly more R&D spending than Cray Research and Sonic Wave, enjoys less of a perception of technical leadership from its customers
- Exhibit 5 builds on this point. The key insight is the absolute expense (not percentage) Syzygy is spending on R&D. Correct analysis will show that Syzygy is spending money on features that do not generate customers' "willingness to pay". Syzygy is spending money to develop features that consumers are not willing to pay for.

Solution and recommendations

Solution & Recommendations

- The candidate should be able to produce one of the following insights:
 - Cut R&D to eliminate spending on unnecessary customer features.
 - Keep R&D spending the same, but switch the work to developing features that consumers will be willing to pay for at a level that is higher than the R&D expense itself.
- A second-order insight from the case is that Syzygy should exit the operating software business (product #5 in this case) since it's small market share will continue to erode as a result of economies of scale, network economics and the experience curve all working against it.

Bonus/Guide to an Excellent Case

- An excellent interviewee will –
 - Take a few seconds to fully understand each of the complex graphs he/she is given before giving an answer.
 - Immediately ask about R&D spending and not go through COGS or SG&A first (this is a hi-tech company, so R&D spending should be looked-at before other drivers of profitability).
 - Conclude their recommendation by not only stating that Syzygy should exit the operating software business, but also focus on the categories in which it is the market leader in order to get some or all of those economies to work for it and against its competition.

Exhibit 1: Syzygy's Historical Costs, Revenues and Profits

Annual Revenues

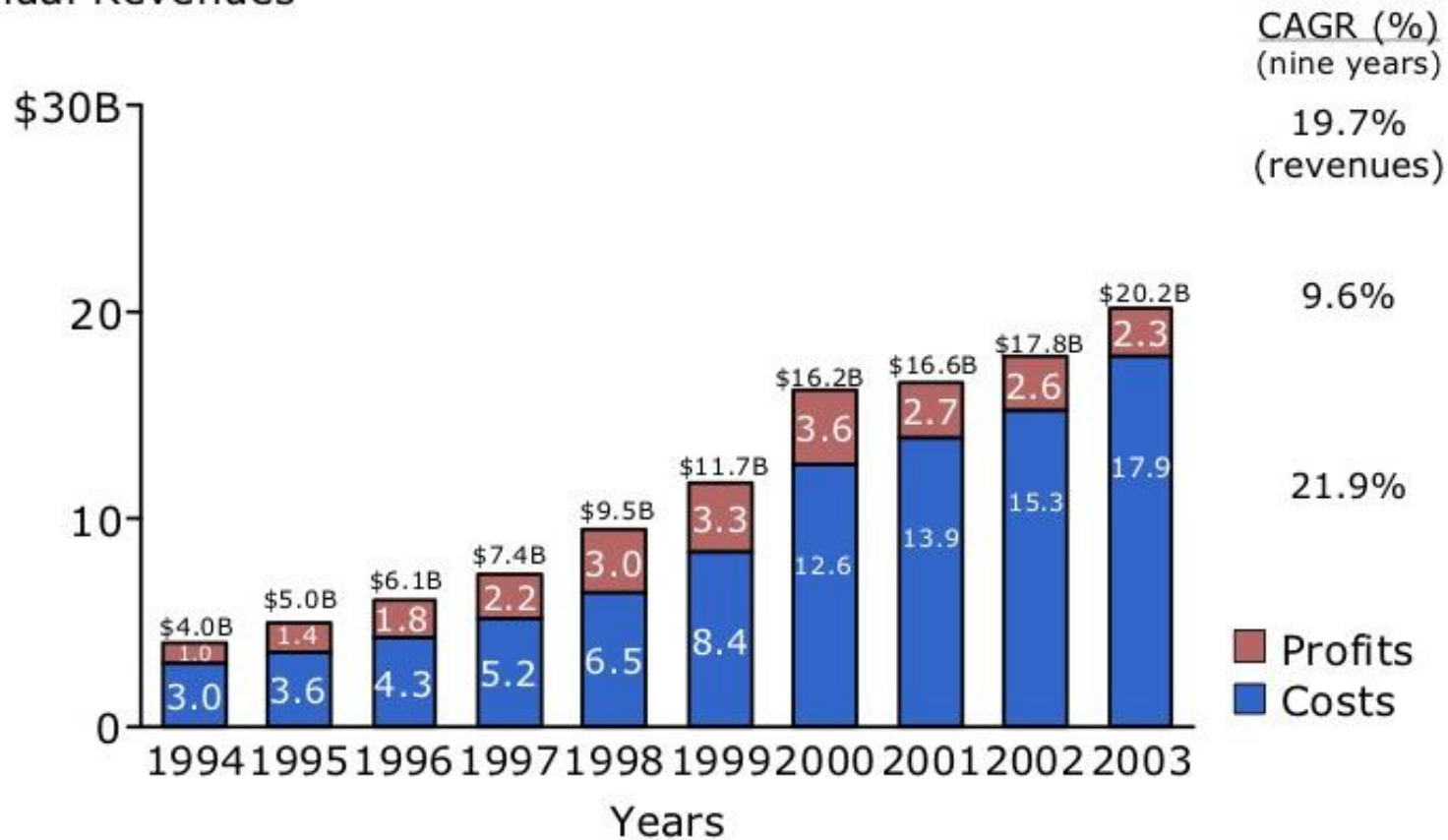


Exhibit 2: Worldwide Telecom Computing Market (Today)

Annual Worldwide Market
(in billions of dollars)

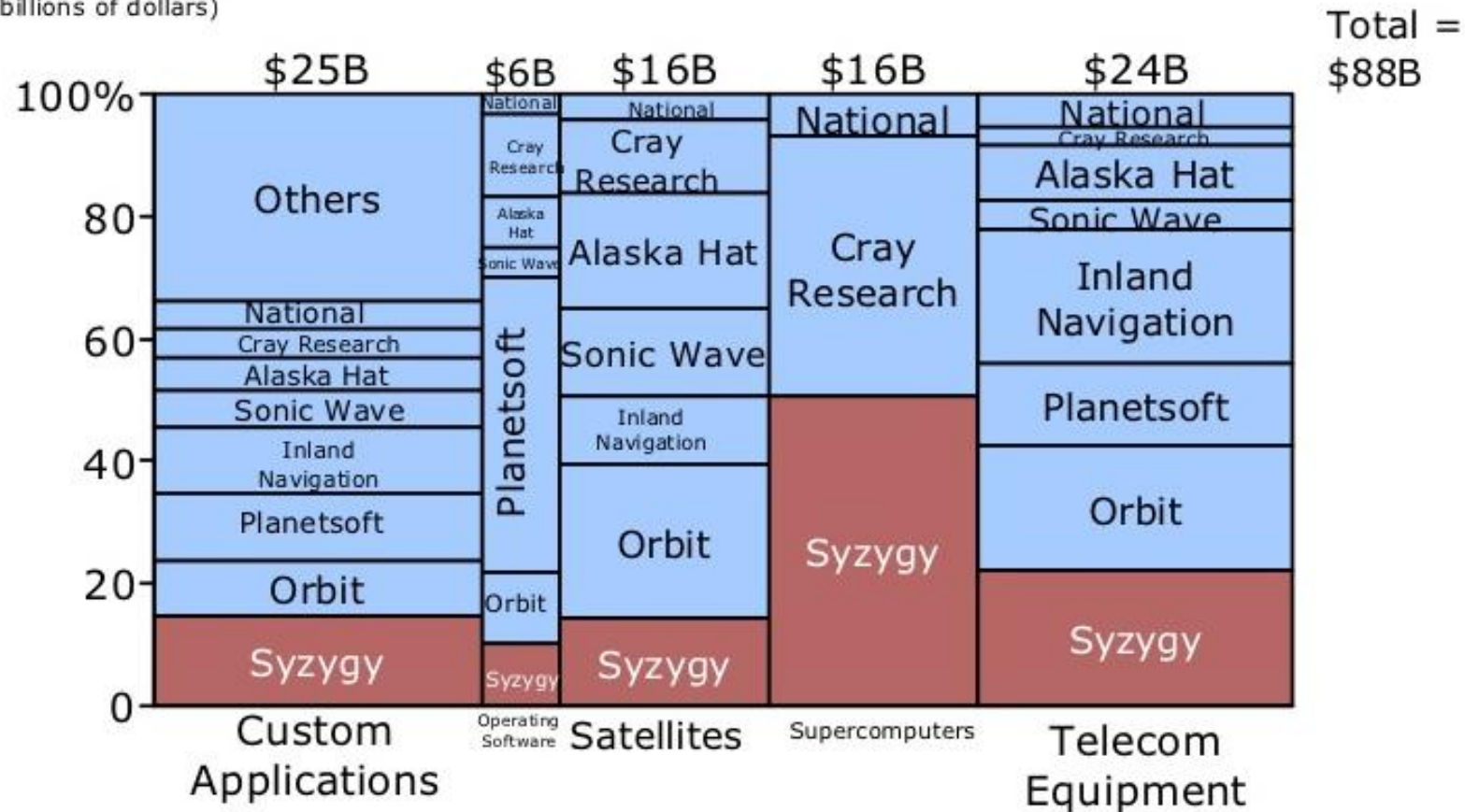


Exhibit #3: Syzygy's Absolute vs. Relative Market Share

Relative Market Share (RMS)

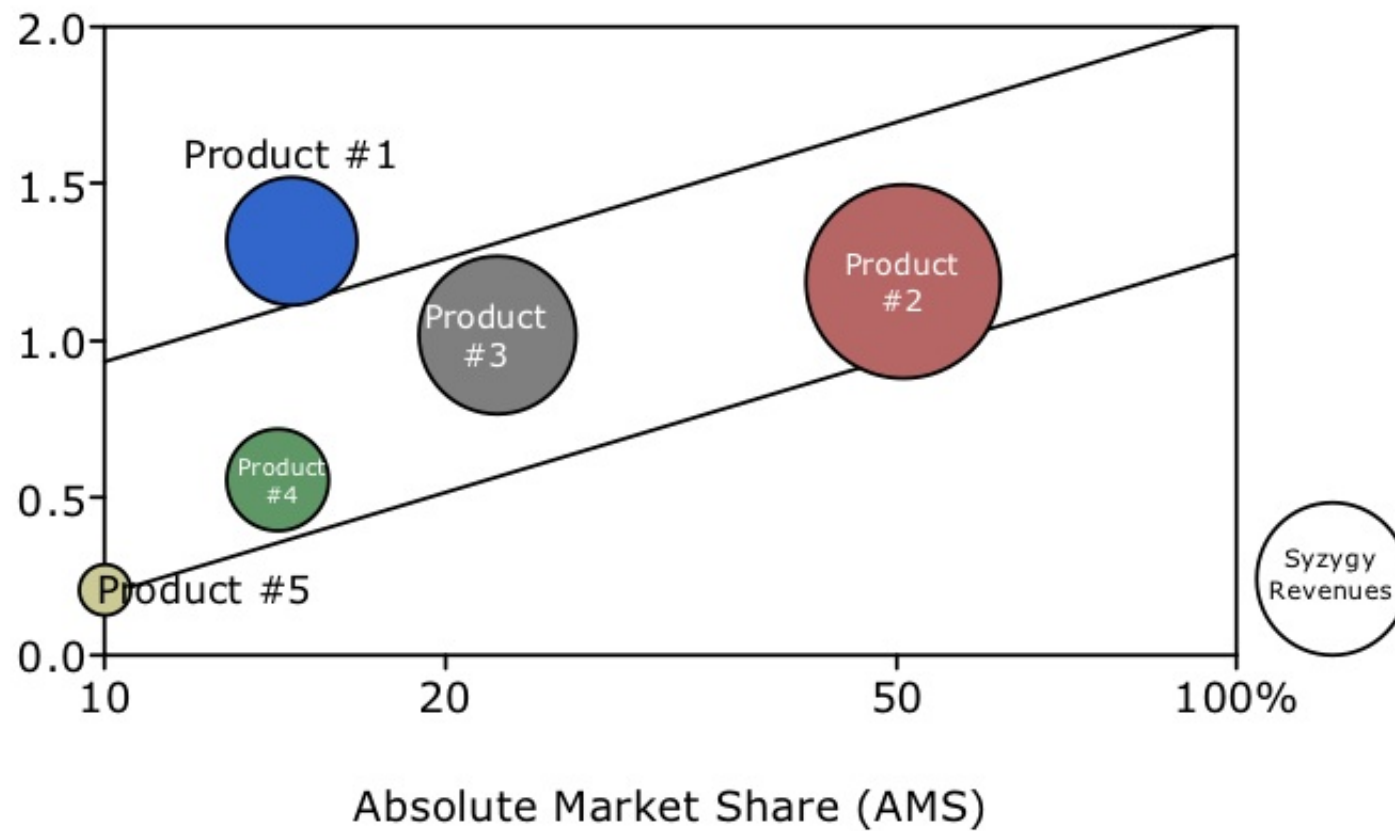


Exhibit #4: Companies' R&D vs. Degree of Technical Leadership

Technical Leadership
(Based on Customer Surveys)

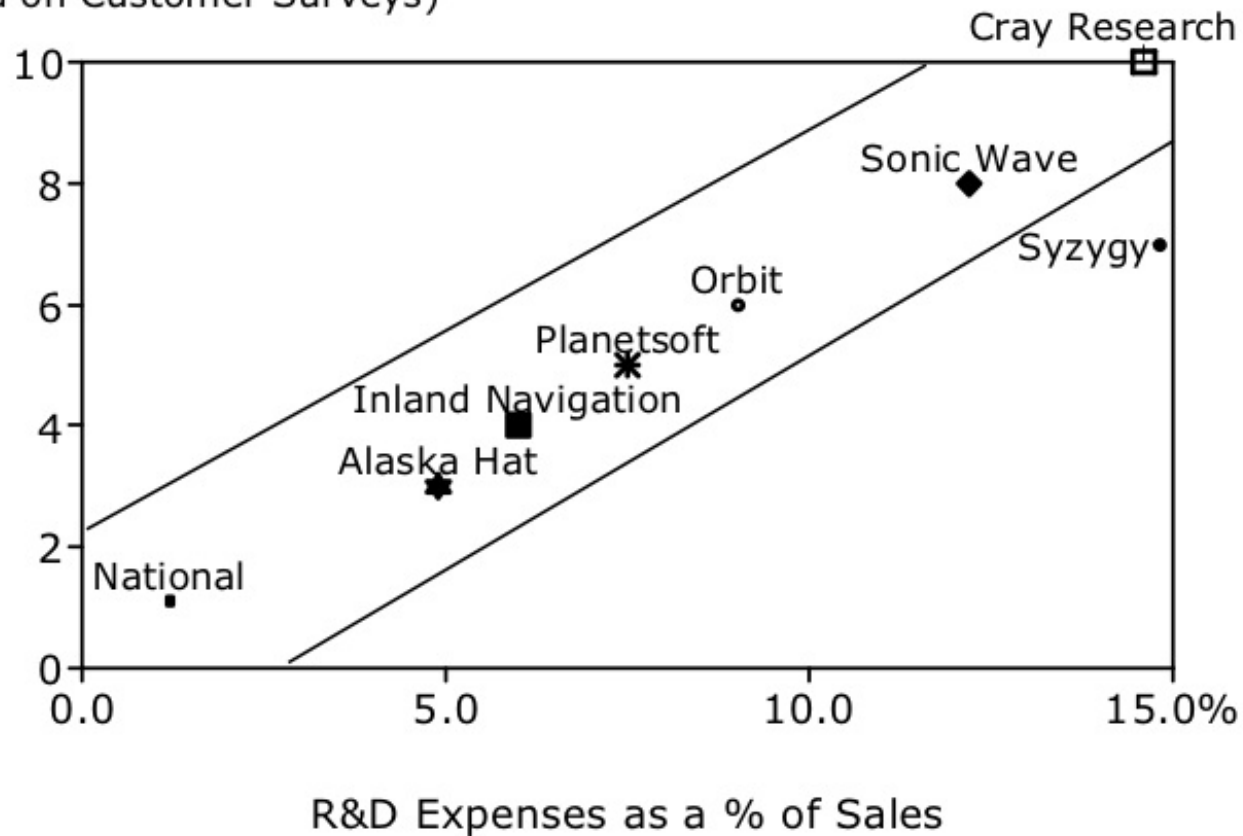


Exhibit #5: Syzygy's R&D Expenses and Selling Prices for Supercomputers

