

Iridium

Revised: August 28, 2002

In June 1990, Motorola announced an ambitious plan to build a satellite network to provide voice, fax, message, and data communication everywhere on the planet. After investing an estimated \$5 billion to set up the system, the company filed for bankruptcy protection in August 1999.

The Vision

Motorola's grand vision was to apply its technology to a network of 77 small satellites (Iridium is element 77) that would circle the earth in low-altitude polar orbits. These satellites (later reduced to 66) provided coverage to "every square inch of the earth."

Motorola's primary interest was in selling equipment. To defray the cost of building the system and provide complementary expertise, it set up a consortium of 19 telecom and industrial companies from all parts of the world. Partners included Lockheed Martin, Raytheon, Sprint, Great Wall Industry Corp of China, Russia's Khrunichev Enterprise, and BCE Mobile of Canada.

The Product

The central idea was a phone that would work anywhere with the same number. Given this capability, the question was the customer base: Who would buy it? Public statements mentioned businesses operating in remote areas, international business travelers, government workers (foreign service and military), airlines, and people in the developing world who had no access to traditional land lines. Satellite service to remote businesses were (and are) an established business, with several vendors providing service oil rigs, mines, and other operations beyond the reach of land lines. These services have typically operated through satellites in geostationary orbits far above the "low-earth orbits" used by Iridium.

The phone. One of the sources of discontent from the start was the size of the phones. Early models were described as bulky or worse. By the time the system began commercial service, Motorola had developed a dual-mode phone that provided both land-based cellular and satellite phone service. It was larger than a standard cell phone, but smaller than the "brick" described in the 1990 announcement. Moreover, the phones were substantially smaller than the "suitcases" used in other satellite-only services.

The service. Although satellites provided global coverage, the satellite service worked only if there was an unobstructed path to the satellite. The dual-mode phones solved this

problem in non-remote areas by switching to cell. Voice transmission also suffered from a short delay (about 0.25 seconds, the time it takes to transmit the signal to a satellite and back). The delay was much shorter, however, than with services based on high-altitude satellites.

The price. When the service was announced, Motorola forecast a price of about \$50 a month for service plus usage fees of \$3 a minute. Prices varied: Iridium acted as a wholesaler of satellite minutes, which were then resold by local affiliates. By the time the service began commercial operation in 1998, the price of world service for a US customer had risen to \$70 a month and \$4-8 a minute.

The Market Test

In November 1998, Vice President Al Gore made the first Iridium call, to Iridium CEO Edward Staiano. Several analysts rated the stock highly, including CSFB (Buy, December 1998) and Lehman (Buy, March and July 1999). By the summer of 1999, however, the customer base had grown to only 55,000, which was not enough to cover the interest costs on Iridium's debt. Iridium filed for bankruptcy protection in August 1999, less than a year after it began commercial operation. The operating assets were purchased by Iridium Satellite, a privately-held startup, for \$25 million in 2000. As of November 2001, Motorola remained in litigation over loans made to Iridium.

Questions for Analysis

- (a) Which characteristics of Iridium's product do you think were most important to potential customers? Global reach? Sound quality? Size and weight of phone? Price? Others?
- (b) Where would you have positioned the product?
- (c) Do you think different product positioning would have saved Iridium from bankruptcy?

Additional Information

Iridium LLC: <http://iridium.com>

Notes

This case was prepared by Robert Finkelstein under the direction of Luís Cabral and David Backus for the purpose of class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. The author thanks Joshua Adelson for helpful comments. © 2001 NYU Stern School of Business.