**Piloting Valero with Real-Time Management**

If you haven’t heard of Valero, don’t worry. It’s largely unknown to the public although investors recognize it as one of the largest oil refiners in the United States. Valero Energy is a top-fifty Fortune 500 company headquartered in San Antonio, Texas, with annual revenues of $70 billion. Valero owns 16 refineries in the United States, Canada, and Aruba that produce gasoline, distillates, jet fuel, asphalt, petrochemicals, and other refined products. The company also owns 10 ethanol plants located in the Midwest with a combined ethanol production capacity of about 1.1 billion gallons per year.

In 2008, Valero’s chief operating officer (COO) called for the development of a Refining Dashboard that could display real-time data related to plant and equipment reliability, inventory management, safety, and energy consumption. Using a series of monitors on the walls of the headquarters operations center room, with a huge central monitor screen showing a live display of the company’s Refining Dashboard, the COO and other plant managers can review the performance of the firm’s 16 major refineries in the United States and Canada.

The COO and his team review the performance of reach refinery in terms of how each plant is performing compared to the production plan of the firm. For any deviation from plan, up or down, the plant manager is expected to provide the group an explanation, and a description of corrective actions. The headquarters group can drill down from executive level to refinery level and individual System operator level displays of performance.

Valero's Refining Dashboard has been so successful that the firm is developing separate dashboards that show detailed statistics on power consumption for each unit of the fum, and each plant. Using the shared data, managers will be able to share best practices with one another, and make changes in equipment to reduce energy consumption while maintaining production targets. The dashboard system has the unintended consequence of helping managers learn more about how their company actually operates, and how to improve it.

But how much do Valero's executive dashboards really make a difference? One of the dangers of real time management is not measuring the right things. Dashboards that display information unrelated to the firm's strategic goals might be largely irrelevant, although pretty to look at. Valero's goals and measures of performance were inspired by Solomon benchmark performance studies used in the oil and gas industry. How helpful were they?

Valero's stock price fell from a high of $80 in June 2008, to about $20 in November 2010. As it turns out, Valero's profits are not strongly related to small changes in its refining efficiency. Instead, its profitability is largely determined by the spread between the price of refined products and the price of crude oil, refined to as the “refined product margin.” The global economic slowdown beginning in 2008 and extending through 2010 weakened demand for refined petroleum products, which put pressure on refined product margins throughout 2009 and 2010. This reduced demand, combined with increased inventory levels, caused a significant decline in diesel and jet fuel profit margins.

The price of crude and aggregate petroleum demand are largely beyond the control of Valero management. The cost of refining crude varies within a very narrow range over time, and there are no technological breakthroughs expected in refining technology. Although Valero's dashboard focuses on one of the things management can control within a narrow range (namely refining costs), the dashboard does not display a number of strategic factors beyond its control, which nevertheless powerfully impact company performance. Bottom line: a powerful dashboard system does not tum an unprofitable operation into a profitable one.

Another limitation of real-time management is that it is most appropriate fur process industries such as oil refining where the process is relatively unchanging, well known and understood, and central to the revenues of a firm. Dashboard systems say nothing about innovation in products, marketing, sales, or any other area of the firm where innovation is important. Apple Corporation did not invent the Apple iPhone using a performance dashboard, although it might have such a dashboard today to monitor iPhone manufacturing and sales. Managers have to be sensitive to, and reflect upon, all the factors that shape the success of their business even if they are not reflected in the firm's dashboards.

**CASE STUDY QUESTIONS**

1. What management, organization, and technology issues had to be addressed when developing Valero's dashboard?

2. What measures of performance do the dashboards display? Give examples of several management decisions that would benefit from the information provided by Valero's dashboards.

3. What kinds of information systems are required by Valero to maintain and operate its refining dashboard?

4. How effective are Valero's dashboards in helping management pilot the company? Explain your answer.

5. Should Valero develop a dashboard to measure the many factors in its environment that it does not control? Why or why not?