


4 Early Supplier Integration in the Design of the Skid-Steer Loader¹

“Congratulations, Scott. You are the new supply management manager of our new Deere & Company Commercial Worksite Products manufacturing facility in Knoxville, Tennessee. As you know, we really need your help to make this new facility fully operational in 24 months. I am sure you realize that a critical responsibility of your new job is to integrate suppliers into the product development process for our own Deere manufactured skid-steer loader as quickly as needed. You will be reporting directly to me, and I need a proposal from you by the time we meet next week on June 15, 1996.”

As Scott hung up the telephone with James Field, plant manager and his immediate boss, he realized that this was not a simple request. In his proposal, he knew he would need to (a) identify and justify which suppliers to integrate in the product development phase, and (b) specify how to structure the interactions with these chosen suppliers. The recommendations in his proposal had to ensure that this new plant would be up and running smoothly by the target date in July 1998.

Deere & Company

Deere & Company, headquartered in Moline, Illinois, had more than 150 years of history, making it one of the world’s oldest business enterprises. A well-respected company, Deere & Company had a core business portfolio in 1996 comprised of the manufacturing, distributing, financing and servicing of agricultural equipment (e.g., combines and tractors), construction and forestry equipment (e.g., log skidders and forklifts), and commercial and consumer lawn care equipment (e.g., lawn and garden tractors and mowers), as well as other technological products and services. With more than 38,000 employees worldwide, Deere & Company conducted business in more than 160 countries.

The Skid-Steer Loader

The Product

The skid-steer loader, a small loader with a 1,000–3,000 pounds load capacity, was targeted for construction and ground care sites in need of light, versatile and easy handling land-moving equipment (see Figure 1). Deere & Company pioneered the skid-steer

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Figure 1**Examples of Deere Skid-Steer Loaders**

loader market more than 25 years ago but, subsequently, the company had contracted the engineering and manufacturing to New Holland, an independent contractor. Although New Holland produced its own line of skid-steer loaders that competed directly with the Deere brand, it agreed to sell its excess capacity to manufacture essentially the same product for Deere & Company, allowing aesthetic changes for brand differentiation only.

The Market

In 1995-1996, Deere's average market share for the skid-steer loader varied between 1 to 3 percent. Market data indicated that this market niche was growing at a rate of 15-20 percent per year and was projected to reach overall sales of U.S. \$1.2 billion or approximately 60,000 units by year 2000-2001. Given these numbers, corporate headquarters became increasingly interested in establishing the Deere skid-steer loader as one of the leading worldwide competitors in this market niche with a goal of more than tripling its market share.

In order to reach such an aggressive goal, Deere realized its market penetration strategy needed to focus on fundamental order-winning criteria in such areas as:

- *Product Features:* Because the skid-steer loader is a fixed investment asset, product features that improve ease of use (e.g., versatility of load placement), reduce operational costs (e.g., fuel-efficiency), and reduce maintenance requirements (e.g., self-lubricating parts) would make the difference between the Deere brand and competing products.
- *Product Range:* To better serve the customers, Deere knew that it needed to offer some product variety, as typically required for industrial equipment, given different usage requirements. Therefore, a range of models, perhaps differentiated on load capacity and available options (e.g., hand or foot controls) was needed.
- *Product Delivery:* Deere knew that demonstrating its skid-loader's versatile functionality and being able to demonstrate and deliver the product to the actual work site was an important sales incentive.

- *Price:* Last but not least, the demand for skid-steer loaders was highly price sensitive. As a result, minimizing cost of goods sold without sacrificing timely delivery of a high-quality Deere skid-loader was imperative.

The situation before 1996 was, therefore, pretty clear. As long as engineering and production of Deere brand skid-steer loaders were in the hands of a third party—one that, in fact, competed in the same market niche—there would be little opportunity to gain significant benefits over competing products and product features. The same argument held for cost considerations, making better delivery and service the only competitive advantages. Furthermore, expecting market demand for skid-steers would increase, New Holland had refused to sell additional production capacity to Deere & Company. As a result, Deere & Company decided that it needed to regain direct control of the design and manufacturing of this potentially lucrative product.

The “Greenfield” Knoxville Decision

In April 1996, corporate headquarters approved a capital investment project of U.S. \$35 million dedicated to regaining control of the design and manufacturing of the steer-skid loader. This capital investment decision also approved the placement of the design, manufacturing and marketing functions in a new facility to be built near Knoxville, Tennessee. The mandate was clear—engineer and manufacture a high-quality skid-steer loader that would be 20% lower in costs than that of the best competitor’s by August 1998, consistent with other identified order-winning criteria.

Scott Nolan, CQE, PE, and New Supply Management Manager

Nolan joined Deere & Company as a manufacturing engineer, after graduating from Iowa State University with a mechanical engineering degree in 1979. Along the way, he has received an MBA (in 1989) from the University of Iowa, as well as professional certification as a Certified Quality Engineer and as a Professional Engineer. In 1989, Nolan began working in supply management for the Horicon, Wisconsin, lawn and garden equipment manufacturing facility. The opportunity to join a new Deere manufacturing facility in the role of supply management manager was a welcomed promotion and challenge.

Supplier Integration in Skid-Steer Loader Design

Having worked in supply management for the past seven years, Nolan was well aware of the general principle of involving suppliers in product development and manufacturing decisions and the frequently touted benefits of lower costs structures, faster product development cycle and reduced operational inefficiencies. He believed, however, that not all suppliers needed to be or should be involved, especially in the early stages of the new product development process. Furthermore, involving suppliers should not be “lip-service”; the selected suppliers should be well integrated into the various product development activities.

Student Assignment

Imagine you are in the position of Scott Nolan. Write a two-page memorandum that (a) identifies, defines and justifies the criteria (limit 4) for screening suppliers to integrate into the early phases of the Deere skid-steer loader development process, and (b) recommends guiding principles, practices and/or specific techniques to provide for effective integration of early supplier integration in the Deere skid-steer loader development process.

Discussion Questions

1. Suppose there are 100 potential suppliers. How many suppliers do you think should ideally be integrated in the early skid-steer development process? Why that many or that few?
2. Are there tradeoffs in terms of the number of suppliers to integrate? If so, what are the tradeoffs?
3. Are there tradeoffs among the identified criteria? Can you tell? What do you need to know to better answer this question?
4. Would you mandate weekly meetings as an inter-organizational policy to structure the interactions? If not, how can you facilitate communication?
5. What role can IT play or should it play in structuring these interactions? What concerns do you have with the suggested IT role?
6. Suppose the criteria you developed suggest that you integrate supplier X into the product development process for the skid-steer loader. What reasons might lead you to choose not to do so or to reduce the convenience of doing so?
7. What do you think might be hurdles to overcome at Deere to integrate suppliers into the early phases of the product development process?