

**Improving Information Systems for Harley-Davidson
Company and its Authorized Dealers**

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Improving Information Systems for Harley-Davidson

Company and its Authorized Dealers

Because of the competitiveness of the motorcycle industry, manufacturers must offer more than just a means of transportation. Owners of Harley-Davidson products buy their motorcycles as a part of an entire lifestyle (Anonymous, 1999, June). The image of the defiant biker-type is still appealing to motorcycle purchasers, and riding a Harley-Davidson motorcycle is a “fantasy risk” (Yates, 1999) for some owners. The company had experienced problems in the early 1980’s with an influx of foreign competition (Owen, 1999). But with improvements over the past several years, the company now leads the superbike market in the United States. Harley-Davidson is thankful for the strong product-loyal customers they have, but they must do what they can to continue to make their business successful in the coming years.

Problem Definition

Symptoms that require attention

Point-of-sale terminals often could not connect with headquarters. For some, data was stuck in their local LANs, making it inaccessible to those outside the LAN.

Simple questions could not always be answered quickly. Voice mail was used, but it was often unreliable. It could often take several days for a caller to have a message responded to.

Harley-Davidson used a system called Talon for running everything from point-of-sale to service scheduling (Kalin, 1998). Although the system is useful, it does not have an error-checking feature.

Warranty forms were submitted on paper, and handwriting on the paper forms was sometimes difficult to read (Kalin, 1998).

Management cannot get all of the customer information that they would like to have. There is no standardized system for relaying this data from the dealers to the corporate level.

Underlying fundamental issue

Harley-Davidson needs a reliable system for communicating with and conducting business with its authorized dealers.

Justification for Problem Definition

Both external customers (viz., dealers) and internal units at Harley-Davidson wanted better communications. Because of this influence, management considered creating an Extranet. There were at least three systems being used to process information between dealer and company: Talon, h-dnet, and hard-copy paper. There was no unified system in place for managing information.

Some of the dealerships did not have computers. This meant that they had to communicate with Harley-Davidson by phone and by mail. Also, dealers without computers had to check on the status of claims by having to make a phone call between the limited hours of 8 a.m. and 4:30 p.m. The relationship between Harley-Davidson and its dealers is a very important one (Caldwell, 1998) that must be taken seriously. Competition has increased from both foreign and domestic motorcycle manufacturers.

Alternate Courses of Action

Maintain the Status Quo

Maintaining the status quo would be easy. Harley-Davidson already has its h-dnet connection that dealers can access. The fact that only 10 percent of the dealers use it shows that they prefer their current systems to the h-dnet system. Also, the DOS-based Talon system can still be used for point-of-sale, accounting, and service scheduling.

Improve the Talon system

Management has already considered modifying the Talon system. They consider it a basically strong system.

Create a new Extranet system that is totally Web-based

With a new system, Harley-Davidson can have a completely fresh approach to solving their problems. DOS-based systems, like Talon, are used less frequently now than in the past, so a system based fully on Web technology is a system designed with the future in mind.

Unify Information Systems into an Extranet with Web-based technology

Harley-Davidson could use the basic systems that it already has that work well. With modifications, it could make those systems better with Web-based technology. Any new systems that are employed would be done so with Web technology.

Evaluation of Alternatives

Maintain the Status Quo

Advantage(s). There are no new costs associated with making no changes to current systems. Some people find change frustrating. Some of the dealers do not even have

computers, and making no changes will allow them to continue operations as they have in the past.

Disadvantage(s). Current problems will not be solved by making no improvements. In fact, they may even exacerbate. Also, although there are no direct costs associated with leaving current systems in place, there may be indirect costs represented in terms of loss of sales and a weakening of position in the competitive motorcycle industry. Making no changes will not solve the Talon system's lack of an error-checking feature to minimize the number of bounced-back claims.

Modify the Talon system to take advantage of Web technology

Advantage(s). The Talon system has already been recognized as a sound system. Some of the dealers are already using it and are familiar with its benefits. The system is already in place; costs will be low compared to alternatives requiring major changes.

Disadvantage(s). The Talon system does not have an error-checking feature. Designers would have to add that feature to a modified Talon system. If the Talon system is not modified to be able to use Web technology, it will fall short of its potential.

Create a new Extranet system that is totally Web-based

Advantage(s). With a totally new Extranet system, the company will have a fresh start, and all dealers will have the same starting point. No one will have an advantage over another dealer, because all will be introduced to the system at the same time.

Disadvantage(s). Creating a totally new system precludes keeping current systems that are successful and that have features that dealers are familiar with. A completely new system

being designed from scratch could be expensive. There may be resistance from some dealers to changing to a totally new and unfamiliar system.

Use Web-based technology to create an Extranet that unifies current and new Information Systems

Advantage(s). A unified system will keep what currently works, with Web-based modifications, and it will allow the adding of new features not currently offered with the previous systems.

Disadvantage(s). There will be costs associated with creating new parts of the Extranet and with unifying those new parts with older parts of the current systems. It could be difficult to unify the two systems. Also, dealers may resist the change to a new system.

Review

The case study already established that Harley-Davidson sees Extranets as a useful method for improving communications with their partners. They have already decided that improvement was needed. They even spent close to \$1 million (Kalin, 1998) developing their h-dnet Web server. It was not designed to replace the useful Talon system. Rather, it was added to compliment the current system, and was designed to be able to have increased functionality as needed. Over half of the dealers in the United States agreed to try it when it was first introduced.

According to the article, "Manufacturing's Moods" (Alexander, 1999), one of the main skills that characterize information technology (IT) in heavy manufacturing is expertise in different types of data storage. Information pertaining to parts for Harley-Davidson motorcycles may need to be managed in different ways. They may use certain parts in

manufacturing for many years. Other parts may be replaced or modified with improvements. The company needs to be able to manage different data in singularly appropriate ways. Dealers, especially dealers that may offer product repairs, could benefit from access to text or visual data on parts.

Harley-Davidson has shown interest in consolidating internal operations. For instance, they have consolidated monthly data collecting, invoicing, and forecasting (Sullivan, 1999). Also, the company has decided to use Oracle's Internet Procurement software to blend its procurement processes into a single, automated system (Whiting, 1999). Similarly, the company should consolidate its sharing of information with dealers. Therefore, the recommendation is that Harley-Davidson use Web technology to create an Extranet that unifies their current systems with new systems. This Extranet will be a consolidation of current and new systems.

Conclusions

Harley-Davidson already recognizes the benefits of Web technology. They are working on an Intranet pilot program called Rapid Information Delivery and Exchange (Gilbert, 1999). The company has tested it using general information such as calendars and bulletin boards, and plans to expand its use into human resources, manufacturing, and supply-chain applications.

The Extranet should be initially focus on improved information transfer between company and dealers. However, Harley-Davidson may eventually want to consider allowing at least limited access to certain suppliers. The company has already shown interest in getting suppliers involved in their product design and development process (Anonymous, 1999,

March 11). As more parts development is being outsourced to suppliers (Schmitz, 1999), there may be an increasing need for suppliers to access product specification data on the Extranet.

Harley-Davidson has been increasing its staffing of IT employees. During the past four years it has more than doubled the number to a total of 180 people (Caldwell, 1998, November 30). They have sufficient internal staffing to design the Extranet project in-house. Occasional expertise may be needed from the outside. If so, it is recommended that the IT department at Harley-Davidson consider Scott Swain, a Web designer and database specialist with the Austin-based SeaSoft. His company has developed Web platforms for business exposure in numerous different industries including software, computers, electronics, dentistry, auto, and religious. If hired as a temporary consultant, Swain should be paid an annualized salary of at least \$90,000, which is reasonable considering his talent. A sampling of his projects can be viewed at his Web site at www.Blue-Sea.com.

The implementation plan includes building upon Harley-Davidson's successful h-dnet pilot system. The best features of Talon should be modified to incorporate Web technology and to compliment the h-dnet system. The company already has over half of the dealers in the U.S. with access to it. At the present time, unfortunately, only about one-tenth of the dealers take full advantage of the features of the Extranet (Caldwell, 1998, December 7).

The Extranet program will be introduced worldwide, to all of the dealers. Extranet use should become mandatory by the end of a phase-in period of one year. Within one year from full implementation of the Extranet, all dealers will be required to be using it.

For individual dealers who do not have computers, Harley-Davidson should offer an incentive. The company could pass on cost savings to the dealers by buying computers in bulk quantity, and by being willing to pay at least half of the cost of the computer. Dealers that already have computers who want to upgrade to a newer computer model could still apply for the discount. Costs for the purchase of monitors and printers should be the responsibility of the dealer. However, Harley-Davidson could offer low prices on these output peripherals if those items were also purchased in bulk.

Specific choices (i.e., hyperlinks) included on the home page of the Extranet should at least include items or topics specified in Table 1. Each link should clearly indicate which section it corresponds with. The easier the Extranet is to use, the sooner all of the dealers will feel comfortable with it, and the sooner they can realize and appreciate its benefits. Other hyperlinks on the home page can include features previously available on the Talon system, but that have been modified to work with Web technology.

Table 1: Links on the home page of company Extranet
Company history, mission statement, future goals
Financial data
Sales tips (i.e., ideas on improving salesmanship)
Governmental regulations affecting the motorcycle industry
Calendar Information
Product design
Product documentation and Owner's manuals
Map of Dealer locations worldwide
Suppliers
Warranty forms
Profile: Dealer of the month
Customer database and Customer demographics
Sales contracts
Frequently Asked Questions
The Manufacturing Process
Comprehensive list of all parts
Electronic mail

Help (for detailed use of every feature of the Extranet)
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Downloadable software should be available to all dealers so that their systems are prepared. A training video will be sent to each dealer. The first segment of the video will have instructions on how to download the software for the Extranet. The second segment on the video will instruct how to set up the software that has been downloaded. The software will be a self-extracting zip file. The third and final segment of the video will be a tutorial with step-by-step instructions on the basic use of the Extranet. The Extranet itself will have a “help” link that will detail the use of each and every feature of the Extranet.

Harley-Davidson already has their h-dnet Web server hosted by USWeb, and they should keep this same server with their Extranet. A file server and a mail server should be separate from the Web server for the Extranet so that if there are any temporary down-time problems with the Web server, database files and e-mail will not be affected. (Refer to the appendix for a diagram of the components of the Extranet.) For connectivity, a dedicated T1 line is preferred for the Extranet at the host location because of its ability to pass large amounts¹ of data quickly. A switched line system, using 56k modems, is sufficient at dealer locations because their periodic transfers of data will be relatively small.

Any specific dealer will enter the Extranet with a password. The password is required in order to prevent unauthorized individuals (e.g., new employees at the dealerships) from gaining access to the Extranet. There is no need for a firewall to prevent access from the outside because the system will be totally internalized. Secure sections of the Extranet may be

¹ A T1 line can transmit at 1.544 megabits per second.

accessed by special password. For instance, dealers may access their own accounting records, but will not be able to view the accounting records of other dealers.

Evaluation

It is important that management makes sure that everyone knows the intent of the Extranet. Its intent may be obvious, for example, to “improve communications.” But its intent may involve other, more subtle, issues. Hamm and Stepanek (1999) describe a company whose purchasing agents missed the point of their new Web-based system for ordering supplies. The purchasing agents tried to get suppliers to lower their prices. Management communicated their displeasure with this tactic and let the purchasing agents know that the true intent of the system was to make ordering easier for all parties, not to negotiate lower prices.

The resistance that will be put up from some of the dealers who do not want to change to the Extranet system should be met with a confident approach touting the benefits of the Extranet. The dealers should be encouraged to see it as a value-added system. The use of the Extranet will add *value* to their business by allowing for quick responses to questions, immediate inventory counts, 3-D pictures of motorcycles, 24-hour access, and other features. Also, if management can get all of the customer data that they would like to have, demographical modeling can be established that could improve marketing and advertising strategies. All dealers will benefit if marketing and advertising are more effective.

According to Stein (1998), manufacturing companies may understand the value of the extended IT value chain better than companies in other industries. The motorcycle industry is a good example of an industry where information can affect all stages from design to

manufacturing to final purchase by a consumer. Acquiring customer information (which could include customer suggestions) may actually help with resource planning and supply-chain management. New product development can be influenced by customer suggestions, so the business can actually be affected at all levels from product development to end users (i.e., customers). With Web technology, manufacturers are reaching out to their business partners and conducting business in new ways and at any time of day (Stein, 1998). That is why it is important that Harley-Davidson and its dealers make the most out of information that is available, and using Web technology is the medium through which they can achieve that objective.

Instead of manning phones and logging written orders from dealers, employees who previously had those duties can spend more time analyzing sales data, and can spend more time making goodwill phone calls to dealers and suppliers. Their efforts should be coordinated by a cross-functional team that includes representatives from the departments of Information Systems, Human Resources, and Sales. The cross-functional team concept has been successfully used before at Harley-Davidson between the Purchasing and Inventory Management departments (Orange & Robinson, 1999). The team's findings will be important to ensure that dealer response to the Extranet is positive.

According to Ambegaonkar (1997), emerging Intranet and Extranet technology will be the main information platforms of the coming decade. Harley-Davidson relies completely on its 2,000 dealerships worldwide to sell its products (Caldwell, 1998). It is thus of high importance that the dealer-company relationship is a strong one. The new Extranet created by Harley-Davidson will improve the flow of information, and will allow it to focus on its chief

strength and that is *making* quality motorcycles. It will allow the dealers to improve upon what they do best, and that is *selling* quality motorcycles.

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Appendix

Diagram of Extranet for Harley-Davidson and its Dealers

