Herman Miller's Kiosk Is A Big Deal with Dealers

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Countdown to Success

1996	Herman Miller executives envision a system for dealers to directly enter orders remotely. Project assigned to Doug Hayden and a team of four.
June, 1996	Original processing coded along with EDI integration to backend ERP systems and deployed to small group of dealers.
December, 1997	Deployment has grown to about 1,000 users running on Solaris laptops.
Early 1998	Migrated all dealers off Solaris laptops onto Notes/Windows. User base grows to over 4,000 by the end of 2000.
Summer, 2001	Kiosk developed and piloted. Deployment began in January 2001 and was completed in June with over 7,000 users, including employees, dealers, and suppliers.

The Company

Herman Miller, 79-years-old in January, is a manufacturer of office furniture and interior furnishings.

The Situation	Herman Miller wanted to shorten order-processing time while improving order quality, to gain a competitive advantage and provide a simple way for dealers to enter orders from remote facilities.
Solution Partners	Lotus Consulting Services provided system architecture and infrastructure expertise. Lotus Notes/Domino provided advanced synchronization technology, platform independence, cutting-edge access options, and unparalleled security. LearningSpace, QuickPlace, and Sametime, also from IBM, allowed rapid training of employees and dealers, and contributed to rapid deployment.
The Bottom Line	▶ On-time deliveries run greater than 99.5%. ▶ >250k documents per month processed through Kiosk. ▶ 30% reduction in order-status calls.

Executive Summary

Herman Miller, a 79-year-old company that designs and manufactures innovative interior furnishings for offices and homes — including the hugely coveted Aeron chair — needed a way to allow customers and dealers to uniquely configure products and transfer the resulting customized designs to one of its eight manufacturing facilities quickly and without errors. It also knew that if it could offer this innovative e-procurement service while simultaneously cutting order lead times and improving order quality, that it would have a huge competitive differentiator, allowing its products to stand out in an increasingly crowded market.

Herman Miller selected Lotus Notes and Domino, from IBM Corporation, as the platform for this project because of Lotus Notes' proven synchronization capabilities, which enabled the dealers to work with customers at their own facilities, in a disconnected mode. IBM's MQSeries messaging tool is used to integrate the Lotus Domino-based order-taking system with the ERP systems running in Herman Miller's manufacturing plants. These manufacturing sites are currently running at better than 99% on-time deliveries.

Application and Business Benefits

Applications	e-Procurement for Herman Miller dealers, remote training, and collaborative commerce application for employees, suppliers, customers, and dealers.
Business Benefits	Reduce the design to ship order process for subset of products from an industry average of four to six weeks to just over two weeks. Reduce the purchase order process by two days. Consistent on-time delivery performance better than 99.5%. Order-status calls reduced by 30%.
Software	Lotus Notes/Domino, LearningSpace, QuickPlace, Sametime. IBM MQSeries, IBM DB2.
Servers	IBM S/390 Parallel Enterprise Server running corporate information systems including order management. IBM AS/400 with MAPICS ERP running manufacturing plants. UNIX with J.D. Edwards ERP running manufacturing plants. UNIX with Baan ERP running manufacturing plants. Kiosk running on Lotus Notes/Domino on Windows.
Services	IBM MindSpan Solutions.

Situation Analysis

Background

Publicly held Herman Miller has been headquartered in Zeeland, Michigan since its founding in 1923. Today, the company boasts offices and dealerships in over 40 countries around the globe. Widely known as an innovator in the design of its furnishings and services, Herman Miller has also been an innovator in its use of technology to streamline and simplify business processes for its network of over 500 dealers.

Before Herman Miller undertook this project, its dealers would write up customer orders, by hand, and submit them by phone or fax. Some orders were sent via a DOS-based program written in the mid 80s that did not support all manufacturing sites equally. The lack of consistency and the limitations of the DOS program were causing confusion and its daily batch processing was adding time to the process. After the orders were entered into the corporate order-management system, they were transmitted to one of the different ERP systems that control production at the eight manufacturing sites. This process not only slowed down deliveries to customers, but also was prone to errors in transcription.

Doug Hayden, IT Project Manager at Herman Miller stated, "Management had a vision for e-business before the term even existed. By taking advantage of technology in the critical areas of order management and communication, they transformed the way office furnishings are designed and sold." One example of this innovative thinking is the rules-based logic configurator that Herman Miller designed and gave away to dealers for free. This product enabled dealers to show customers two-dimensional or three-dimensional images of the furniture they had configured to ensure that customers liked the results of the space plan, office configuration, style, color, and fabric choices made during the design process.

The Need: Streamline Dealer Ordering Process to Attain Competitive Advantage

Herman Miller has different product strategies or value propositions depending on the end user of its product. For example, there is the SQA (Simple, Quick, Affordable) product line that is targeted toward small or emerging businesses of 150 employees or less. This brand offers slightly fewer configuration options than other Herman Miller brands, but easily outperforms competitors based on the speed and reliability of delivery. Its Web-based product line, called Red, also sells directly to end customers from the Herman Miller Web site.

But nearly 80% to 90% of its volume comes from the traditional dealer channels offering custom design services, and today the bulk of this comes through the dealer extranet known as Kiosk. Dealers are typically held to exclusive contracts for office design systems furniture, but often offer a mix of other categories of furniture from Herman Miller's competitors. Thus it is crucial to Herman Miller's success to ensure that dealers and customers prefer Herman Miller products to competitor's products.

To ensure this preference, Herman Miller executives knew they needed to offer innovative, high quality products that could be delivered quickly and more reliably than any competitor could deliver. They looked at the order-management process to cut lead times. With the then current system, it could sometimes take days or weeks for customers to approve a design and sign off on the order. Once approved, the order was written up by the dealer, phoned, faxed, or electronically sent to Herman Miller, where it was entered into the order-management system. Next, it was passed on to the manufacturing site, where it was entered into the ERP system.

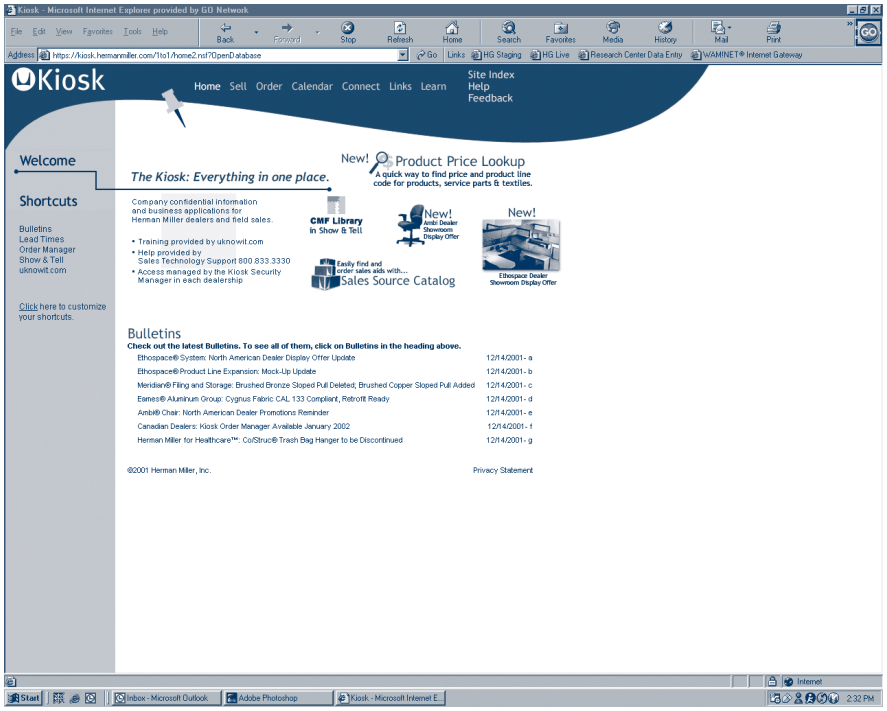
This methodology was error prone as well as time consuming. When custom orders are made incorrectly, someone has to assume the cost of the mistakes or risk an unhappy customer. Improving the order-management process would not only help Herman Miller achieve competitive advantage, but would also help the bottom line — and the bottom lines of its dealers. Executives envisioned providing an e-procurement system for the dealer network to use in placing orders.

Doug Hayden was assigned the task of carrying out management's vision of this process. Hayden and his team immediately began researching tools to make the vision a reality.

Action Plan and Decision Process

First Steps: Design the Process, Select the Tools

As far back as 1992, Herman Miller had designed a graphical configuration and specification tool that enabled dealers to collaborate with prospective customers on all the potential product options. At the end of this process, the dealer could actually show the customer a multi-dimensional, full-color image of its chosen configuration. This design tool ran on UNIX laptops that the dealers carried with them to customer sites. Using this tool, the dealers could now configure the customer's order at the customer's own facility and get a signoff on the designs on the spot. In 1996, Herman Miller enabled the dealer to dial up a Notes/Domino server and transmit the order configuration through a Notes application running on the Solaris laptop. This first use of the Notes order-management tool had dramatically lowered the time-to-configure and place an order.



Kiosk Home Page

Herman Miller elected to design the next generation of the order-management application, known as Kiosk, using Lotus Notes and Domino as the platform. Initially, Lotus Notes' unparalled ability to synchronize information from disconnected laptops was of paramount importance, since dealers needed access to the systems while at customer sites. Later on, Lotus Notes' and Domino's Internet accessibility became equally important as dealers and customers alike began to rely on the application for information updates.

Another challenge the application needed to meet was security. Once a dealer enters an order, no one else should be able to change it. This eliminated discrepancies between what a customer thought they ordered and what was ultimately manufactured, removing the cost of writing off inventory manufactured to incorrect specs because of data entry errors. Once again, Lotus Notes and Domino fit the bill.

The last consideration was the hardware and OS platform. Hayden knew that ultimately the company would want to move the solution to a Windows platform, but at the time the project started, the dealers owned or leased Sun Solaris laptops, and the original order-entry system also ran on UNIX. The tool had to be compatible with all platforms to ensure long-term success.

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— Doug Hayden
IT Product Manager

When asked about selecting Lotus Notes as the platform for this crucial application, Doug Hayden responded, "It was a straightforward decision. There really was no other tool that offered Lotus Notes' combination of functionality and portability. The ability to work in disconnected mode and to synchronize remotely, the strong security model Lotus Notes provides, and Notes' platform portability were all key requirements for the success of the project. We couldn't afford to shortchange the application in any of these areas."

While the team briefly considered other tools, such as a distributed RDBS solution with XML, the tools for these platforms "just weren't all there yet," explained Hayden. "They were entirely too bleeding edge for such a mission-critical application. And we've stayed with IBM and Lotus because they continue to meet our needs."

Communication and Collaboration: Keys to Speed

Herman Miller is renowned for having a culture that encourages employee participation, where people are open to sharing ideas and trying new ways of doing things. And as a large multi-national corporation, team members may be located almost anywhere in the world. Employees and dealers needed a way to communicate and collaborate quickly and easily with one another. With the high volume of information on products, customers, and suppliers that employees and dealers need to have at their fingertips, a traditional "push" approach just didn't make sense. Employees either got too much information, information they didn't need or want, or information at the wrong time. Sometimes they missed getting information they needed, either because it got lost in the sheer volume of messages or because people were inadvertently left off distribution lists.

Another Lotus software product, Lotus QuickPlace, proved to be the solution for collaboration and information sharing. DuAnne Talley, Manager of Collaborative Computing, explained, "A lot of our teams cross many facilities and many people. Our user base has quickly seen how easy it is to use.

End-users take advantage of our extranet and set up their own QuickPlace the way it makes sense for them." Lotus QuickPlace has put an end to all of that confusion and missed information by providing a single secure extranet site that employees, suppliers, and customers can access at their convenience, reorganizing or searching information in ways that make sense for them.

Talley elaborated, "Our end users are just loving it. It provides a simple common interface — the user's browser of choice. The information is all in one place and users are free to go and get whatever they need when they need it. They can search in a very organized fashion for information."

The ability to invite suppliers, vendors, dealers, and even customers to participate is a big part of the appeal. "Like all Lotus Notes applications, it's secure — extremely secure," mentioned Talley, "and it really brings everybody together quickly and simply."

Herman Miller's teams also use Lotus Sametime for online chat and meetings, to further enhance collaboration capabilities for far-flung team members in place of face-to-face meetings. This has enabled them to keep the famous Herman Miller camaraderie and teamwork going strong, without letting geography or time zones interfere in employee or customer interactions.

Challenges: Pushing the Envelope

In 1996, when Herman Miller began working on this project, synchronization of information on standalone PCs with a centralized database was a technology in its infancy, except for Lotus Notes and Domino, which had very advanced capabilities. Since the ability for dealers to easily configure an office design while at the end customer's site was seen as key to reducing delivery lead-time, this was an important factor in the selection of a technology platform. Another important consideration was the requirement for scalability and reliability of the application and the system which processes upwards of 250,000 documents a month.

"We've enjoyed working with Lotus. It's been a good partnership."

— Doug Hayden
IT Product Manager

To ensure that the hardware as well as the software could provide critical scalability and reliability, Herman Miller turned once again to IBM. Herman Miller chose a S/390 server to run the order-management software, and AS/400 and UNIX servers to run their mission-critical ERP systems in the manufacturing plants.

Once again, IBM rose to the challenges Herman Miller threw at them. Doug Hayden stated, "We've enjoyed working with Lotus. It's been a good partnership. We had good access to people within the company whenever we needed them, plus we used Lotusphere to keep up with where the product was going. When we have problems, we get quick responses and fixes. We've always gotten the resources we needed when we asked for enterprise support." Herman Miller also had a weekly conference call scheduled with a dedicated Lotus Notes support person who helped to ensure that the project stayed on track.

Since the dealers are all independent companies, Herman Miller cannot require them to use systems that the dealers don't find convenient. One important challenge Hayden and his team faced was to design an application that was simple and easy to use, yet captured the complex information needed to process custom orders. Kiosk's enthusiastic adoption by the dealer network shows that Hayden's team met this challenge head on.

Solution Profile and Implementation Strategy

Kiosk: Developing the Solution

Hayden and his team spent approximately three months developing the original order-processing code, then took another year to finish writing and testing the application's complex EDI interfaces. Much of that time was spent integrating resources with the MVS/CICS order-entry system, which ran on an IBM S/390 server at the corporate site with the J.D. Edwards, Baan, and MAPICS ERP systems running at the manufacturing plants. They also spent several days with the consulting staff from Herman Miller's EDI partner, both for training and to review the system design.

Today, Herman Miller receives between 80% and 90% of its business via Kiosk. Lotus Notes clients create and validate purchase orders which are passed via replication to corporate Domino servers. The purchase orders are extracted via Lotus Notes API for processing by an EDI translator.

From there, MQSeries takes over, pushing purchase-order information to an EDI application for transmittal to one or more of the ERP systems running at the manufacturing plants.

The manufacturing sites then send acknowledgements, shipment information, and invoices back through the same EDI/MQSeries transport. Other integration points occur as information is pulled from DB2, Oracle and flat files into Kiosk's Domino-based applications. Domino/Notes applications also handle a number of work-flow forms automating the customer service request process.

Doug Hayden feels that there is no other toolset that would have allowed the application to be developed any faster. In fact, when Hayden and his team evaluated putting the Kiosk application on another leading RDBMS, they found that the end-user support required from the team would have made the project impossible. Hayden elaborated, "That platform was designed to be run as 100 remote servers, not as thousands of remote users."

Herman Miller currently supports thousands of end-users with a help desk staff of 10. There are also eight people involved in training users, who are primarily sales people from the dealer network rather than direct Herman Miller employees.

In the past, Herman Miller had to train dealers in a traditional classroom environment. This led to widely uneven levels of education, which decreased the overall effectiveness of the sales force. Herman Miller realized that a consistently well-educated sales force, improved time-to-market,and a consistent message from all 7,000 users in the dealer community would lead to increased sales and better customer satisfaction.

Again, the solution came from IBM in the form of IBM MindSpan Solutions, an IBM service, and Learning Space 4.0, which became the core of its e-learning initiative. IBM MindSpan Solutions used Learning Center to create and set up Herman Miller's education system — meeting or exceeding the company's training needs at every step. The resulting Learning Space provides benefits at every stage of the education process, from providing a simple registration system and management of prerequisites, to providing live interaction between students and instructors, as well as tracking and recording student progress.

Kiosk's Architecture

Herman Miller's dealers that want to synchronize their laptops with the Kiosk system usually have Lotus Notes client software version 5.04 or 5.08. But the vast majority of the dealers access Kiosk over the Internet, using Herman Miller's extranet solution. In fact, over 7,000 users access Kiosk this way from their desktop or at a client site.

At Herman Miller corporate, Kiosk runs a Lotus Domino server version 5.08 for both the live and development environments (see Figure 1). The team created integrated capabilities to pull

information from the Lotus Domino system and pass it over to IBM's MQSeries for backend processing. MQSeries is integrated with the several backend manufacturing ERP systems via an EDI application, allowing the order information to be integrated with the manufacturing systems in use at the plants. The two-way integration also transmits from the manufacturing ERP systems. This backend integration passes shipment and invoice information to MQSeries for updating order-status information in Kiosk and in the manufacturing order-management systems.

The first version of Kiosk was rolled out to users in 1996. Initially, it was utilized by about 60 sales people and grew rapidly to over 1,000 users, all running Lotus Notes on Solaris laptops. After approximately a year and a half, Hayden's team rolled out the next generation, which utilized Windows. Today, over 7,000 users access Kiosk. "The real evolution has come in the scope of what we deliver to our dealers," Hayden clarified." For example, through Kiosk, not only can dealers enter orders, but they can also check an order's shipping status, track shipments, and enter and monitor service calls."

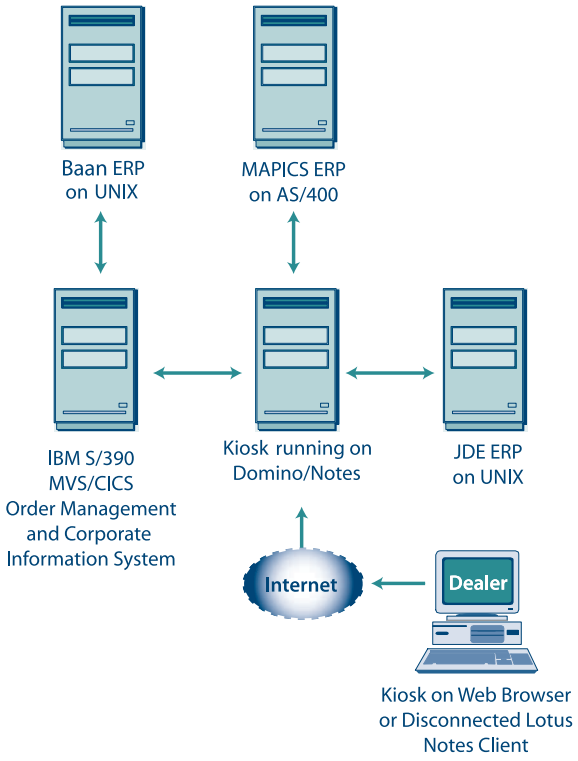

Figure 1: Herman Miller's Kiosk takes order information from dealers over the Web and uses Lotus Notes, Domino, and MQSeries to provide extensive two-way integration between corporate information systems, an order-management system written in-house, and the ERP systems that are crucial to running the manufacturing operation at Herman Miller's plants.

Lessons Learned

"In an industry where an order for a simple cubicle may include 40 line items, there's plenty of room for error and confusion to creep into the process. The bad news is, if you order it wrong, you own it, so it's in everyone's best interest to eliminate errors. Kiosk has done this for us," explained Doug Hayden. "We learned a lot of things we always intuitively knew. We found that it's best to collect order information as early in the cycle as we can, and that the person who is creating the data should be responsible for entering it." This simple step helped to eliminate many order errors due to incorrectly rekeying information and reduced delays due to questions.

Herman Miller made an initial investment in the design tool to help with this issue, but Kiosk's e-procurement functionality was the real key to improving the order process. Orders used to be faxed or sent via batch overnight from the dealers, then processed through order entry. There were too many places for errors to creep in, along with increases in lead-times due to processing delays.

Business Benefits

Kiosk Benefits	Leads to
Faster Order Entry	Faster delivery lead times is a competitive advantage.
Timely Order Status Information	Reduced dealer calls to check on orders, increased customer satisfaction.
More Accurate Order Information	Reduced inventory of incorrectly ordered materials, happier customers.
Comprehensive Dealer Extranet	One place to go for information and e-business sales tools from Herman Miller.

Business Results

The Kiosk project was never given a formal ROI objective. Herman Miller executives funded the project with the strong belief that a change in the order-management process would be a major competitive advantage. However, they did ask the project team to justify the selection of the Lotus Notes and Domino platform.

When the costs of the tools and the team required to develop, deploy, and support Kiosk on Lotus Notes were compared with other alternatives, Herman Miller found that the IBM/Lotus platform had a more attractive cost structure than a layered "best-of-breed" approach could provide. While delivering more functionality with less cost, Lotus Notes and Domino met the need for scalability, reliability, and functionality to provide the competitive advantage Herman Miller sought.

Although not set up as a formal ROI, the project did have metrics it was expected to meet. One of these was to reduce calls from dealers looking for status updates on their orders. Herman Miller has already seen a reduction in calls of over 30%, as dealers find that it's easier — and just as fast — to check the status by themselves over the Web, using Kiosk. Herman Miller expects this trend will continue as the application becomes even more fully deployed.

Herman Miller's original objective of reducing order lead-times and remaining a market leader — partly through reliable delivery promises — has also come to fruition. Each week, the on-time shipment performance is posted in each of the manufacturing plants. Deliveries are running consistently better than 99.5% on-time. Recent weeks have even exceeded 99.7%. The reliability of the IBM hardware and software are essential to keep Herman Miller on track for this goal.

In addition to providing rapid, secure, custom order-entry capabilities, the Kiosk tool allows Herman Miller to keep abreast of product line changes quickly and easily. Herman Miller believes that Kiosk helps it to treat its dealers as partners rather than as simple resellers. Kiosk also allows better communication between dealers, which makes the whole office design experience seamless to the end customer, especially if they are working on multiple facilities that are geographically dispersed.

The Kiosk has become an extranet portal for the Herman Miller dealer community. It is the one place to go for both information and e-business tools from Herman Miller. The sales staff has access to extensive product information as well as on-line catalogs of marketing and sales aids. Designers have tools for specifying product and detailed product application guides. Order entry can check contracts, find special products, create POs, and monitor the entire order process. Online service forms offer status and manage work flow for timely processing. Herman Miller was able to use Domino's security and HTTP support to incorporate several Web sites that were once outsourced to various ASP's.

The whole idea behind Kiosk was to allow the Herman Miller dealers to outperform competitors in speed and reliability. It also allows them to more easily sell design services and make installation faster and less painful for their customers. For Herman Miller, service is a competitive differentiator. So important has service become in their industry that for a particular customer, the contract stipulates that if the furniture is not installed in 30 days, it's free.

"Speed is no substitute for quality, and we've always been known for quality. Kiosk has allowed us to provide both to our dealers and customers," declares Doug Hayden.

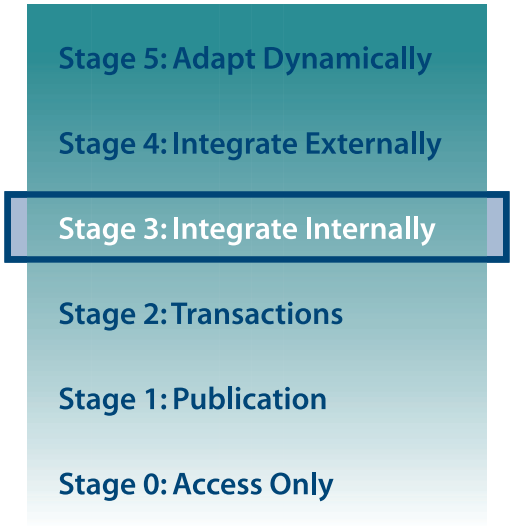

Figure 2: Herman Miller's use of Kiosk to integrate its business processes firmly with those of its customers and suppliers puts it in the forefront of e-business.

Case Epilogue

Herman Miller's Kiosk application must continue to evolve if it is to remain a competitive differentiator. Although Kiosk recently underwent a minor facelift to add new graphics, it continually evolves behind the user interface, as well. Hayden firmly believes that sticking with standards is key when exchanging data. To help speed the flow of information, he and his team are adding support for XML over the Web for direct import of order information from dealers. XML and SMTP will also be used on the backend to pass orders to the manufacturing plant's mission-critical ERP systems. Also, in the future, dealers will not only be able to enter and inquire about orders online, as they do now, but also make changes to existing orders.

Continuing Challenges

"The biggest barrier we face in the future is continuing to evolve our speed, reliability, and quality processes when these processes involve coordinating training and support for the over 500 independent businesses that make up our dealer network," says Doug Hayden." We need to provide excellent training and support to help them stay up to speed. We see our role evolving from technology enablers to technology ambassadors."

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