Johnson & Johnson's Ethicon Limited Rolls Mobile Service Into the Operating Room

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Executive Summary

A subsidiary of Johnson & Johnson, surgical supply provider Ethicon Limited teamed with IBM to bring mobile service to 15 of the U.K.'s largest hospitals. In the past, hospitals relied on out-dated, manual methods of restocking surgical supplies. IBM and Ethicon developed a handheld application to process orders instantaneously with IBM Mobile Connect and IBM AS/400. The system saves Ethicon several hours of order processing per day and eliminates errors resulting from the manual entry of orders. Expecting the service to process more than $30 million in orders during the first year of use, Ethicon plans future rollouts throughout Europe.

Countdown to Success

August 1999:
Ethicon and IBM first meet to discuss e-business opportunities for the surgical supply distributor in the U.K.

September 1999:
Ethicon U.K. enlists IBM to design a mobile application for hospital supply orders.

October 1999:
Ethicon approves application designed by IBM in less than six weeks.

Early November 1999:
IBM Mobile Connect installed.

Late November 1999:
First device tested at Manchester Royal Infirmary.

January 2000:
Ethicon delivers service to 14 additional U.K. hospitals.

Introduction

As the world's leading supplier of sutures and other surgical supplies, Ethicon offers more than 3,500 products to some of the largest hospitals in the world. Having joined the Johnson & Johnson family of companies in 1949, today Ethicon represents a large portion of its parent company's more than $28 billion in annual sales. Hospitals in dozens of countries purchase Ethicon products to keep their emergency rooms and operating labs fully equipped. Daily restocking of surgical supplies is critical to these institutions and the lives of their patients.

In the past, these hospitals relied on time-consuming, manual methods of checking inventory, registering supply needs, and placing orders. Many hospitals logged several phone calls a day to suppliers like Ethicon to guarantee adequate supply levels for any type of medical emergency. "We wanted to automate this process, to make it faster and easier for our customers to get the surgical supplies they need," said Iain McMillan, Information Management Director for Ethicon U.K.

The company estimates that nearly half of all healthcare distributors still place orders via fax or other paper-based transaction modes, while another 40% of orders are done by phone. "Most hospitals lack the technology infrastructure to automate their supply reorders, and few of them are in a position to make a substantial IT investment," said McMillan.

Among its goals for an automated order-entry system, Ethicon wanted to:

- Save time and resources; manual order processing took as much as an hour per order and consumed thousands of hours in employee labor each year at Ethicon.
- Eliminate errors that result from the manual submission of orders.
- Increase brand loyalty through streamlined order management.
- Free employees from phones, paper, and fax machines.
- Leverage customer buying patterns to alert hospitals of pending supply needs.

"These hospitals must be adequately stocked at all times, to make sure operations flow smoothly in the surgical lab, to save lives," said McMillan.

Ethicon wanted an automated system that was both easy-to-use and affordable for its customers. Its goal was to create a remote order-entry system to exploit new consumer-driven Palm technology in order to inexpensively overcome the lack of technology in hospitals and minimize IT requirements for its customers.

Following is an account of how the surgical supply company collaborated with IBM to automate the restocking process for some of its largest U.K. customers. "IBM's mobile application allows users to log purchase orders instantaneously with a single click of a button," said McMillan. "It's an easy-to-use solution that offers real value to our customers."

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Information Management Director for Ethicon U.K.

Step 1: Determining the Customer's Business Needs

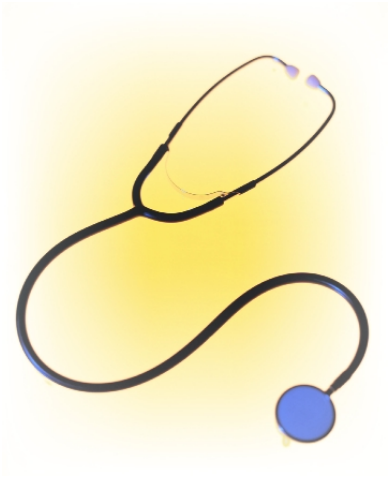
In early 1999, Ethicon began evaluating different opportunities for automating stock reorders at several large metropolitan U.K. hospitals. Many of these hospitals were working with extremely limited IT resources, said McMillan. "In one instance, the hospital stock manager had to walk a considerable distance to get from his office to the surgical supply closet. He wrote his entire order on paper and phoned the order in to Ethicon. The process was time-consuming and open to error if the manager wrote down the wrong code."

Similar methods of manual order entry were reported by many of Ethicon's largest hospital customers. Without a desktop computer, many stock managers relied on the phone or fax to submit their daily orders. In some instances, managers phoned in several orders daily. Registering an order by phone could take as long as an hour. "We wanted to bring the time and cost-savings inherent in e-business to our customers," said McMillan. "Developing a mobile system to log orders would eliminate a tedious task that devoured our customers' time."

Step 2: Selecting the Right Solution Provider

Realizing that a remote order entry system would bring significant value to management, sales, marketing, and IT at Ethicon, McMillan worked with representatives from each area to find the right system provider. For six months, McMillan and his multidepartmental team researched solutions offered by several technology vendors before selecting IBM for the job. "We chose IBM based on the company's history of performance at Ethicon," said McMillan. "We were also impressed by the order-entry system IBM had already developed for U.K.-based Safeway grocery stores. That solution seemed very similar to what we hoped to offer our customers."

Using IBM pervasive technology, Safeway supplied some of its large-volume customers with handheld devices to place orders from home. Customers submit orders on a handheld device that connects directly to their phone line. No Internet access or desktop is necessary. Grocery shoppers use the device to submit their orders, which are then processed by Safeway personnel.



The cost of saving lives: Ethicon anticipates its wireless customers will submit $30 million in orders for emergency room supplies and other medical resources during the first year alone.

McMillan said Ethicon was impressed by the effectiveness of the Safeway solution and the ease-of-use of the technology. Like the grocery store customers, many of the hospitals he worked with did not have access to a computer, let alone the Internet. "We couldn't expect our customers to be electronically enabled. In many instances, phone connections were our only communication link," said McMillan. "IBM's Palm OS solution gave us greater flexibility. The wireless capabilities of this solution permitted us to install a mobile solution quickly, without a large IT investment by us or our customers."

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Ethicon and IBM had worked together for more than a decade at this point. Fifteen IBM AS/400 servers dispersed throughout European data centers were used to run business applications such as inventory management and order processing. "IBM was already an important part of Ethicon's infrastructure, and we wanted to work further with the company," said McMillan.

Report to the ER immediately: Ethicon, a Johnson & Johnson company, delivers more than 3,500 products to hospitals worldwide, keeping emergency rooms and operating labs fully stocked at all times.

Step 3: Establishing a Common Goal

In mid-September 1999, McMillan met with Carolyn Babinsky, a U.K. sales representative for IBM Pervasive Computing. The two discussed Ethicon's options for developing a mobile order-entry system that could be used by customers with limited technology infrastructure. "Ethicon wanted a wireless reordering system that would be used by more than a dozen of its top purchasers," said Babinsky.

At this meeting, Ethicon and IBM established top objectives for the system:

- **Simple order entry.** Ethicon envisioned an automated ordering system that was easy to learn and easy to incorporate into a stock manager's daily routine.
- **Faster service.** Ethicon needed to reduce the time it took, up to an hour in some instances, to process customer orders.
- **Proactive stock management.** Ethicon expected to use the data it acquired through an automated order-entry system to alert customers of potential purchasing needs and to flag products purchased in the past.
- **The right price.** Many of the hospitals using Ethicon could not afford a significant IT outlay. Ethicon needed to take these limited budgets into account when providing customers with an automated solution.

Ethicon also wanted a system that lowered the total cost of its business model, to increase its competitive edge in the market. Ethicon had set a mid-November deadline to go live with its first mobile system, requiring IBM to develop an application in under six weeks. "We knew it would be a tight schedule to develop the right solution," said Babinsky. "We had to develop a client for the handheld device, and we knew this would be the most time-intensive stage of the project."

"Order processing can be extremely expensive, both from a customer and a supplier perspective," said McMillan. "IBM and Ethicon decided to look at this area first. Our joint goal was to develop a tool that attracted and retained customers. We wanted to drive up the percentage of electronically collected orders, to help grow our company's business, and achieve our goal of being the easiest healthcare supplier with which to do business."

Step 4: Making Order Entry Fast and Simple

In less than six weeks, IBM Pervasive Computing Services developed a handheld mobile application for Ethicon based on the original solution created for Safeway's grocery customers. The application used IBM Mobile Connect to link a hospital's supply maintenance office to Ethicon's order-entry system. All a hospital needed was a basic phone line to connect with its supplier.

"In the past, the supply manager needed to write down each product code, go back to his desk, and call Ethicon with an order. Ethicon then brought up the customer's records and manually logged the order over the phone before the order could be filled. This process took 20, 30, even 50 minutes a day," said Babinsky.

The new solution made order entry fast and simple for managers:

- **Scan an item's bar code in the surgical supply closet.**
- **Enter the quantity of items needed directly into a handheld device.**
- **Return the device to its cradle.**

Once the wireless device is returned to the cradle, the order is passed to an SQL server database via IBM's pervasive computing technology, IBM Mobile Connect. "Mobile Connect was the critical enabling technology in this process," said McMillan. "The database uses Mobile Connect to transfer the order to an IBM AS/400 server in one of Ethicon's European data centers where the order is registered by a JD Edwards order processing application."

The AS/400 provided a seamless connection between the new application and Ethicon's existing ERP system. "Any time you introduce a new technology into your environment, connectivity is going to be your toughest challenge," said McMillan. "AS/400 made it easy to implement the application. Right from the start, orders flowed smoothly into our data center."

"Automating this process allows supply managers to instantly relay orders to Ethicon," said Babinsky. "This saved Ethicon customers significant time every day while reducing the possibility of error that is inherent in the manual maintenance of inventory."

> **"AS/400 made it easy to implement the application. Right from the start, orders flowed smoothly into our data center."**
>
> ***— McMillan***

"Ethicon's business and IT management worked closely with IBM Pervasive Computing Services to develop this solution," said Alan Johnstone, IBM's account manager for Ethicon. "To launch an application like this in such a tight timeframe, we needed to have Ethicon management and Ethicon IT behind us. Both parties were keen on having a solution in place and they worked with us accordingly."

During the six weeks of development, IBM made several trips to Ethicon's U.K. headquarters in Edinburgh. Johnstone met with Ethicon management, sales, and marketing departments to discuss their customers' business needs as well as the opportunities for Ethicon to develop a lower cost-of-business model by automating its order-entry system. "Ethicon sales managers knew their customers, and they knew how effective a wireless ordering solution would be to help these customers get the Ethicon products they need," said Johnstone.

"We worked with the different departments at Ethicon to leverage their unique perspectives," said Johnstone. "Sales and marketing were key to driving this initiative and developing an application that would be a real value-add for customers."

Step 5: Determining Business Value

Ethicon first tested its wireless service in November 1999 at Manchester Royal Infirmary, an institution specializing in acute heart and specialty surgery. At the end of the trial, the customer asked that it be able to keep the technology, which had already become integral to the way the hospital managed its surgical supply stock. "Best of all, we were able to install the mobile solution and train hospital personnel in less than two hours," said McMillan.

Over the next 16 weeks, Ethicon installed its handheld device at 14 other hospitals, including some of the most prestigious healthcare facilities in the U.K. At each of these hospitals, Ethicon saw its goals for the order-entry system realized.

Business Value for Ethicon:

With IBM's application, an order that previously took between 20 and 50 minutes to complete could now be processed in a matter of seconds. This automation software allows Ethicon to redeploy staff to areas of greater value-add to Ethicon's customers. By 2002, Ethicon's plans to launch similar wireless initiatives at more than 500 customer sites in France, Portugal, Austria, and other European countries. Multiplied by the number of potential customers, the opportunity for saved labor cost is very large.

Ethicon is using the new wireless system to provide hospitals with order-status reports. Customers use this information to determine what needs to be ordered and to avoid unnecessary reorders. "With IBM's application, we are helping hospitals to streamline inventory control," said McMillan. "There's a significant opportunity here to reduce unnecessary spending."

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— McMillan

Ethicon benefits, in summary:

- **Saved labor time.** $3,000 per hospital x 500 potential European customer sites = $1.5 million annually.
- **Proactive stock management.** Expand on previous $60,000 high-end orders by facilitating reorders through Ethicon.
- **Reduced training time.** IBM was able to train hospital personnel on the mobile solution in less than two hours.
- **An affordable solution.** Automating a broader range of customers, regardless of IT infrastructure.

Business Value for Ethicon Customers:

IBM Pervasive Computing Services developed an easy-to-read graphical user interface for the pilot to make order entry intuitive for managers with limited technical experience. "All you need to do is point the handheld device at the desired product and type in the number of products you need," said McMillan. "Even the hospitals that were least technically developed could use this solution. Deploying the application was unbelievably simple."

IBM's application also saves Ethicon customers several hours a week in manual stock reorders. The first 15 hospitals to use the service reported an average reduction in reorder time from 50 minutes to less than 10 minutes per order using the IBM solution.

Ethicon supplies its mobile service to customers for free. No IT investment or changes to a hospital's existing infrastructure are required. Companies can take advantage of e-business without an Internet connection or high-speed wire service. "For some hospitals, it would be impossible to develop this sort of application through the Internet," said Johnstone. "With IBM's solution, all they need is a basic phone line."

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— Alan Johnstone
IBM's Account Manager for Ethicon

Ethicon customer benefits, in summary:

- **Faster order entry.** 10% of supply managers' daily work time redeployed.
- **Faster service.** 80% reduction in the time it takes to place orders.
- **Proactive stock management.** Access to bulk purchase savings, better supply management.
- **An affordable solution.** Free order automation, a jumpstart on e-business growth.
- **Revenue growth opportunities.** Wireless customers expected to submit $30 million in orders during the first year

Future Plans

Ethicon and IBM are working together to extend the functionality of the mobile reorder service. Future releases will incorporate inventory management, allowing Ethicon to monitor supply levels and buying trends at each of its customer facilities. Ethicon will be able to alert customers to anticipated supply needs based on their previous product selections.

"Essentially, Ethicon will be able to scan everything the customer has in stock, rather than everything that isn't in stock, to help the customer determine purchasing requirements," said McMillan. "We'll be helping customers reduce their inventory and support supplier reduction, and we will be able to allow hospitals to order from multiple suppliers using a single system."

Based on the success of its mobile solution at hospitals within the U.K., Ethicon is also looking to roll out similar services in other European locations. Ethicon says the ease-of-use, limited IT requirements, and quick installation of the IBM solution would make it an ideal service to offer throughout Western Europe and other potential markets in the next two years. "Customer response has been extremely positive. We want to offer this service to more customers, in more locations," said McMillan. "Bringing wireless service to this market is just the first step toward making e-business a reality in these hospitals."

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— McMillan

Conclusion

Deploying a mobile order-entry system based on IBM's technology and innovation has allowed Ethicon to automate a process that was costly and time-intensive for itself and its customers. Ethicon anticipates that wireless customers will submit $30 million in orders during the first year alone. "IBM sped up its deployment process to develop a solution that met the unique needs of these hospitals," said Babinksy.

Ethicon leveraged IBM's mobile application:

- **Making customer service faster and easier.**
- **Eliminating errors in order processing.**
- **Creating new opportunities for sales with existing customers.**
- **Increasing its visibility.**

"IBM's mobile solution has helped Ethicon to automate one of the most time-consuming manual processes within our customer service department," said McMillan. "In the end, the service was a real value-add for Ethicon and a real value-add for our customers."

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