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Whirlpool Europe

By the spring of 1999, Whirlpool Corporation (WHR:NYSE), the worldwide leader in the home appliance industry, had nearly ten years experience selling to the European market and had grown its European market share to a sizeable 13%. Whirlpool Europe's chief financial officer and its vice president of logistics were evaluating an investment in an enterprise resource planning (ERP) system. Named *Project Atlantic*, the system would re-organize the information flow in all of Whirlpool Europe. If successful, the project would improve operating effectiveness and efficiency in Whirlpool's sales and marketing, operations and logistics, and finance areas. The cost of the project, however, would be substantial, and would include the direct costs of the system and the personnel that would be required to complete the complex implementation. Senior management had quantified the costs and benefits, and now needed to evaluate them.

Company Background

In 1989, Whirlpool Corporation entered the European market, paying $470 million to purchase a 53% stake in the appliance division of Dutch-based Philips Electronics. The companies formed a joint venture firm named Whirlpool International BV (WIBV) and one year later, launched a dual-branding program which added the Whirlpool name to the Philips product lines. In July 1991, Whirlpool purchased Philips' 47% stake for $600 million to become the sole owner of WIBV. Over time, Whirlpool developed three pan-European brands to differentiate its product line: Whirlpool, Bauknecht, and Ignis. Other regional brands like Laden, sold exclusively in France, were also created.

Whirlpool Europe manufactured products based on sales budgets or forecasts, and then held them as finished goods inventory. European manufacturing operated 11 plants, ten located in Europe and one in Africa. Each plant produced a specific product line across all brands. **Exhibit 1** provides a plant listing. Unique country requirements, such as language, products attribute preferences, and electrical specifications resulted in multiple stock-keeping units (SKUs) for the same model. In total, Whirlpool Europe manufactured 6,900 SKUs. Orders moved from manufacturing to one of two central distribution centers and then on to one of 12 regional distribution centers before reaching the customer.

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In each major European market, a country sales office—responsible for sales generation and forecasting, order processing and fulfillment, billing and cash collection—was the primary interface with customers. Whirlpool Europe operated many stand-alone information systems that were developed by individual plants, distribution centers, or sales offices specifically to meet their own business requirements. Information could not be easily shared across functions or organizations, and was often inconsistent and irreconcilable. The sales organization, for example, had to access as many as 13 independent inventory systems to view inventory across the supply chain.

There were two types of customers: consumers who purchased stand-alone appliances for their homes and contractors who purchased built-in appliances for new home construction or kitchen remodeling.

Success in the consumer market depended on product quality, price, and availability. Whirlpool Europe estimated that its distribution centers had the product that matched the customer's demand 79% of the time. If the product was unavailable, the customer had to either wait or switch to another product. Often, the lack of immediate availability resulted in lost sales.

Kitchen remodeling in Europe generally involved the installation of new cabinets along with built-in appliances. Installation often occurred only a few weeks after the kitchen was ordered by the homeowner. Whirlpool estimated that this segment of the market would grow to about 25% of kitchen appliance sales. To supply the built-in appliances to this market, Whirlpool would have to deliver its appliances within ten days of being ordered by the contractor. Under its current inventory and information systems, Whirlpool was unable to reliably satisfy the contractors' required delivery time.

Project Atlantic

Description

The goal of Project Atlantic was to design and implement an enterprise resource planning (ERP) system that would allow Whirlpool Europe to better serve its consumer market for stand-alone appliances and contract market for built-in appliances and, at the same time, reduce its inventory by 12 days of sales. These competing goals would be accomplished through an information system that would allow a country sales office to view product throughout the supply chain, thereby increasing the efficiency of the distribution process. Project Atlantic was expected to provide some integration with suppliers and to increase inventory visibility across the supply chain. This would enable the company to improve product availability and have a substantially lower inventory level. In addition, the ERP system would allow Whirlpool to build products to specific orders from contractors.

Whirlpool Corporation took a phased approach to implementation of its ERP systems, beginning in North America, Brazil, and select central European countries. Project Atlantic would focus on the remaining European countries. With ERP, Whirlpool Europe's disparate information systems would be retired and replaced with a single computing architecture for all of Europe. The company planned to install a standard or so-called 'off-the-shelf' ERP system, without any modifications, requiring the company to change many of its operating processes.[1] Employee acceptance of change was therefore critical for success.

[1] The company identified seven top-level operational processes, of which 74 sub-processes were determined to be impacted by ERP.

The project would be managed under country groupings called Waves. **Exhibits 2A** and **2B** detail the Wave groupings and implementation schedules.

Benefits

Working Capital Reduction

The company had 51 days sales of inventory (DSI)[2]. Of the 51 days, approximately eight days were reserved and allocated units, nine were in transit, and three were obsolete. The ERP system would enable Whirlpool to make its supply chain more transparent and efficient, thereby eliminating the reserved, allocated, and obsolete units, and reducing the in-transit time. After a statistical study of its inventory, Whirlpool Europe developed a theoretical model target inventory level of 29 days. Project Atlantic was forecasted to reduce 12 days of inventory in each Wave—over half of the difference between its actual inventory and the theoretical model inventory. **Exhibit 3** shows data for 1997 including DSI by Wave. **Exhibit 4** details the yearly percent DSI reduction in DSI by Wave.

Revenue and Gross Margin Increase

A primary goal of the ERP system was to increase product availability by making the supply chain more visible and by integrating sales forecasting and inventory management. The company's targeted product availability was 92%. The projections assumed that the ERP system and process changes would enable the company to realize an increase in unit sales equal to 25% of the improvement in product availability. Those incremental sales would contribute to increasing the profitability of Whirlpool Europe. **Exhibit 3** includes 1997 data on product availability, units, revenue and margins by Wave. **Exhibit 4** details the projected timing of the product availability improvements.

The company's ability to evaluate profitability at a product line, account, or order level was hindered by the lack of an integrated information system. Decisions on prices, for example, were sometimes made with incomplete or dated information. By installing ERP, the company forecasted a 0.25% gross margin increase by the second year after implementation. To forecast the impact, the company used 1997 revenue as the baseline to apply the gross margin increase for each year of cash flow projections. **Exhibit 5** presents the projected improvements by year and by wave.

Other Cost Savings

The ERP system was expected to substantially simplify the processing and management of customer orders. An 18% reduction in the 79 order desk employees at an average cost of $40,000 per year per employee was expected once the system was implemented. The ERP system would also simplify the accounting function and result in a 15% reduction in the 60 finance employees. The expected cost saving was $45,000 per year for each employee that was eliminated.

The ERP system was also anticipated to generate other cost savings. Whirlpool paid about $40 annually for each square meter of warehouse space. With the reduction in inventory from the implementation of the ERP system, warehouse space could be reduced by 15% (7,200 square meters). Also, customers returned 3% of units they purchased, which cost Whirlpool about $30 per unit returned. ERP was expected to reduce the number of returned units by eliminating shipping errors. The ERP system was also forecast to reduce bad debt expense and information system expenses. **Exhibit 6** details these anticipated savings.

[2] DSI = (Ending Inventory) / (COGS/Days in Period)

Costs

Capital Expenditures

The company would need to spend $4.3 million in 1999 for capital equipment, $8.6 million in 2000, $6.9 million in 2001, and $4.1 million in 2002. It would cost $600,000 and $300,000 for software licenses in 1999 and 2000 respectively. The capital equipment would be depreciated in equal amounts over five years.

Implementation

Implementation required extensive employee training; creation, testing, and documentation of new business processes; and, of course, installation of the ERP software. Implementation of each Wave would require an average of 50 current Whirlpool employees working with external consultants at an expected cost of $45,000 for each employee. According to forecast, the company would need 19 consultants in 1999, nine in 2000, seven in 2001, and four in the following year, at an average monthly cost per consultant of $15, 400.

To ensure compliance with the project plan, the company planned to put a three-person task force in place beginning in July 2000 through June 2004, at an annual cost of $600,000.

On-going Operational

Beginning in 2003, when all Wave implementations were completed, the cost to manage and maintain the new information systems was forecasted to be $3 million annually. However, because each Wave was scheduled to go on-line at a different time, costs would begin early in the program. Beginning in 1999, the company expected to incur $600,000 in annual expense, which would increase by an additional $600,000 each subsequent year through 2003, reaching $3,000,000 annually.

License maintenance fees were forecasted to begin in 2000 at a cost of $100,000 and increase an additional $100,000 each year through 2003, reaching $400,000 annually. These costs would continue until the system was replaced.

Cost of Capital and Taxes

Whirlpool Europe used a 9% cost of capital to discount the ERP project and faced a 40% tax rate.

Exhibit 1 Whirpool Europe's Manufacturing Sites

Location	Products
Amiens France	Washers and Dryers
Norrkoping Sweden	Microwave Ovens
Poprad Slovakia	Washers
Neunkirchen Germany	Dishwashers
Schorndorf Germany	Washers
Cassinetta Italy	Refrigerators and Cooking Appliances
Naples Italy	Washers
Siena Italy	Chest Freezers
Trento Italy	Refrigerators and Freezers
Isithebe South Africa	Refrigerators and Freezers

Source: Company documents.

Exhibit 2A Project Atlantic Implementation Groupings[a]

Wave West	Wave South	Wave Central	Wave North
Belgium	Italy	Czech Republic	Denmark
France	Portugal	Hungary	Finland
Netherlands	Spain	Poland	Ireland
Plus: Warehouse		Slovakia	Norway
Mgt and Physical Dist.			Sweden
			United Kingdom

Source: Company documents.

[a]Austria, Germany, and Switzerland were not part of Project Atlantic.

Exhibit 2B Wave Implementation Schedule

	West	South	Central	North
Start Date:	MAY 1999	MAY 2000	MAR 2001	JAN 2002
End Date:	APR 2000	FEB 2001	DEC 2001	AUG 2002

Source: Company documents.

Exhibit 3 1997 Data for Whirlpool Europe

Wave	DSI	Product Availability	Units Sold	Revenue (000s US$)	Margin (000s US$)
West	45	73.5%	2,271,139	477,784	58,859
South	51	83.1%	1,415,949	283,549	46,241
Central	67	76.8%	977,665	185,625	43,678
North	55	83.2%	1,443,156	280,901	29,818

Source: Company documents.

Exhibit 4 Improvements in DSI and Availability by Year and Wave

	Improvements by Year by Wave					
Wave	2000	2001	2002	2003	2004	2005
West	25%	40%	35%			
South		35%	40%	25%		
Central			40%	40%	20%	
North				40%	40%	20%

Source: Company documents.

Exhibit 5 Margin Improvements by Year by Wave

	Cumulative Margin Improvements by Year by Wave					
Wave	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
West	0.06%	0.25%	0.25%	0.25%	0.25%	0.25%
South		0.10%	0.25%	0.25%	0.25%	0.25%
Central			0.13%	0.25%	0.25%	0.25%
North				0.13%	0.25%	0.25%

Source: Company documents.

Exhibit 6 Forecasted Other Expense Savings by Year (000s US$)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Order Desk Headcount	0	190	411	442	474	506	537	569
Finance Headcount	81	135	216	324	405	405	405	405
Warehouse Space	18	72	155	230	274	288	288	288
Bad Debt Expense	102	512	922	1,024	1,024	1,024	1,024	1,024
Information Systems	420	840	840	1,280	1,280	1,280	1,280	1,280
	621	1,749	2,544	3,300	3,457	3,503	3,534	3,566

Source: Company documents.