HERSHEY FOODS
SYSTEMS PROBLEMS MAKE FOR A SCARY HALLOWEEN

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ABSTRACT

This case discusses the problems encountered by Hershey Foods in the implementation of a new ERP system. Hershey Foods designed and implemented an SAP system rather than modify its legacy system for Y2K. Due to problems with implementation, shipments for Halloween 1999 were insufficient and incomplete. The case requires students to identify changes that could have been made in the design and implementation process to alleviate some of the problems encountered by Hershey. The case can be used in any graduate or undergraduate accounting information systems class that discusses implementation issues, especially those of ERP systems. The questions dealing with the case can be adapted to achieve different objectives by focusing more on system design or implementation issues, ERP systems in general, controls necessary in SAP environments, or auditing implications of new systems.

BACKGROUND

In 1999, Hershey Foods had $4 billion in revenues and 14,000 employees. The I/T system had more than 4,000 users. The company had 25 plants worldwide in three operating divisions. Product distribution was handled by seven regional warehouses, several of which were owned and operated by third-parties (Nannery, 1999).

The candy industry is extremely competitive, but Hershey has the dominant market share of about 40% with Mars and Nestle being its nearest competitors (Plenty of Hershey...). Hershey has redesigned its product line to focus on the confectionary market. In recent years, the company sold Planters, New World Pasta, and Beachnut cough drops while purchasing Leaf North America, which produces Milk Duds, Jolly Rancher, and Payday. Hershey has also expanded its product line by introducing variations to its products, including different sizes and holiday wrappers, resulting in more than 3,300 different candy products (Nelson and Ramstad, 1999).

The majority of sales in the U.S. occur between Halloween and Christmas. Forty percent of industry sales fall between October and December with over half of that being for Halloween (Nelson and Ramstad, 1999). The typical ordering cycle in the industry is about one week (Nannery, 1999).

SYSTEM PLANNING

In spring of 1996, a review of the I/T function revealed that major changes were necessary to handle Y2K. One alternative was outsourcing I/T and another was to completely overhaul the in-house system. A feasibility study recommended against outsourcing, so the company formed a team to select a new client/server ERP system that would integrate supply-chain management, finance, marketing, and accounting. After careful review, the feasibility team decided on SAP. Rick Bentz, Vice President of Information Technology, stated that "We needed a high level of integration and we had a sense of comfort with the SAP product." (Teach, 1997).

The new system would coordinate everything from the sales order to final delivery of the product even specifying how products should be placed in the delivery

trucks. The system would also integrate the accounting, raw materials purchasing, production scheduling, and marketing functions. Implementation required a complete redesign of the computer system and upgrades of all networks and desktop computers. More than 5,000 individual workstations were replaced. The mainframe and servers needed to be upgraded to handle the new system. Finally, all telecommunications had to be replaced to increase the bandwidth to that necessary for the new technology.

SAP handled most of the sales and manufacturing aspects for the company, but two other products were installed as well. A new customer-relations management package from Siebel Systems was determined to be superior to anything offered by SAP. Also, a logistics package from Manugistics was integrated to help production scheduling and product delivery.

The $112 million project was budgeted to take 22 years. Rollout was planned for early 1998 so the complete implementation would be concluded well before Y2K became an issue. Despite the complexity of Hershey's organizational structure, Bentz was confident of the project's success stating that "we really have only three operating divisions.. .We're carving out non-SAP applications and addressing year 2000 today. When we get to the implementation stage, we'll hit the ground running." (Teach, 1997).

IMPLEMENTATION

The system was implemented in Canada beginning in April of 1998 with limited problems. In January 1999, the finance, purchasing, materials management and warehousing modules went live in the U.S. using a "big bang" approach (though Kenneth Wolfe, CEO, denies a big bang approach was used presumably because Canada was implemented first and different modules were brought online at different times (Sulon, 1999c)). For each module, however, workers would leave on Friday using the old system, and when they showed up again on Monday, the new system would be running. The order processing and billing modules were scheduled to be integrated in April of 1999, but that phase was behind schedule. It was imperative that all systems be online before December 31, 1999, so in July Hershey went online with these last two modules.

PROBLEMS

Shortly after implementation, Hershey noted that turnaround time on order fulfillment increased from five to twelve days. Production was operating properly, so the increase in order time resulted in an increase in inventories. By September, the inventory levels were up 29% over 1998 (Stedman, 1999). Even though inventory was plentiful, retailers were told that orders had to be received by September 27 to be assured of deliveries by Halloween, with the caveat that even then, the complete shipment may not arrive. Some companies, like Wal-Mart, had the flexibility to shift orders to other suppliers. Others with partnering agreements, like K-Mart, had to rely on Hershey. Hershey promised to give these major customers' orders top priority, but guarantees could not be made.

John Moser, a manager at 7-Eleven, Inc. claimed that the Hershey's sales representative was calling weekly, instead of monthly, to check on deliveries because the sales rep could not tell from the new system what deliveries had been made. Moser, and others in similar situations, used the empty shelf space for competitors' products. Shelf space is difficult to obtain in this industry because people are more loyal to a type of candy than a brand; if a Hershey bar isn't in

stock, most people will substitute another chocolate bar (Nelson and Ramstad, 1999).

Fears were that the computer system would not be fixed until after Christmas or, worse yet, Valentines Day. By Christmas, however, timely deliveries were being made, though some retailers like Wal-Mart still complained of problems. The cost of getting the products on the shelf, however, had increased dramatically with the new system.

Brian Doyle, one of the hired consultants from IBM stated that "the business process transformation under way at Hershey is an enormously complex undertaking" (Nelson and Ramstad, 1999). Major business process improvements were necessary to make the systems effective. A consultant on the projected confirmed that massive changes were required in the way Hershey did business (Stedman, 1999). For example, the regional warehouses were being replaced with a 1.2 million square foot building that could be integrated more easily into the ERP system (an additional cost not included in the $112 million system development budget) (Sulon, 2000b).

AFTERMATH

Hershey's lost $100 million in sales from the computer problems resulting in a third quarter decline in revenues of 12% and in profits of 19%. Due to retailer dissatisfaction and uncertainty regarding the computer system, it was feared that Hershey might be required to cut prices and provide other incentives to retailers to maintain market share. Management bonuses were curtailed and stock price dropped from its annual high of $74 to $48 (Stedman, 1999).

By March of 2000, Kenneth Wolfe, CEO, stated that there had been "great progress" in fixing the problems (Sulon, 2000a). In his letter to stockholders, Wolfe states:

> While this has been a painful process for us and for our customers, we should remember that the system is designed to make Hershey more competitive through lower costs, better customer service, and increased sales. It has not been the easiest journey, but we still expect to arrive at our intended destination. . .
>
> Time will give us perspective. As we resolve our problems, the frustrations will fade. In their place will be a solid appreciation of the benefits being realized through our new enterprise-wide information system. We will be a stronger, more competitive company for having come through this experience. (Hershey Foods, 1999 Annual Report to Shareholders)

TEACHING NOTE

This case can be used to either introduce design and implementation issues or review the topics discussed in class. The case lends itself to class discussion in accounting information systems classes, I/T auditing classes or any class where systems design and implementation issues are discussed. The case provides the flexibility to review many issues, including the internal and external auditors' responsibilities in the design and review of new systems, the use of ERP systems, and problems with system implementations. I used this case as a final exam in a graduate I/T auditing class because the Hershey experience allowed students to apply their understanding of the major topics covered in the class.

Possible Systems Questions

1. What is ERP?

2. Why was ERP probably chosen over simply adapting the flat-file system to handle Y2K?

3. What are some implementation issues specifically related to SAP R/3?

4. How could the systems design and implementation been modified to alleviate some of the problems?

5. From the retailer's perspective, like K-Mart, what are some risks of partnering agreements?

Possible Auditing Questions

1. As the external auditor, how would the problems at Hershey affect your audit of the 1999 statements?

2. How might the audit change after the new system is in place?

3. How might the internal auditor be affected by the new system?

4. SunLite Casual Furniture and the maker of GoreTex have filed suits against their consultants for similar problems with system implementation. The GoreTex manufacturer alleges that the consultants present their best and brightest for the initial meetings, then once the project is signed and sealed, new staff are assigned to the project who then learn on the company's dime. They claim this is a bait and switch operation. SunLite accused their consultant of designing a system that requires the company to be dependent on the consulting firm in hopes of receiving exorbitant fees for years to come. If courts determine these practices to be fraud, then penalties can be assessed beyond the contract caps (Osterland, 2000). When asked at a stockholders' meeting what Hershey planned to do, Wolfe left the door open for possible legal action (Sulon, 2000c). What do you believe the consultant's liability should be in this case? Provide your assumptions and rationale.

Possible Financial Reporting Question

In January of 1999, Hershey sold its New World Pasta Division and used the proceeds to repurchase Hershey stock. In April, Hershey warned that earnings would be $ .03 below expectations. In September, the Company notified investors that earnings for the third quarter and possibly for the year would fall below expectations due to systems implementation problems. In December, Hershey anticipated falling $.10 below market expectations because of delivery problems during Halloween and Christmas.

It is unusual for a company to admit to systems implementation problems. What explanations may explain Hershey's willingness to disclose this problem?

SUGGESTED SOLUTIONS

What is ERP?

Enterprise resource planning (ERP) software uses client/server technology to integrate the various aspects of the management information system of the company. SAP, Oracle, PeopleSoft, J. D. Edwards, and Baan are the primary vendors of ERP systems and they each provide background on ERP software on their internet sites. Additional information can be found at www.cio.com/forums/erp/ and most other major I/T resources sites.

Why was ERP probably chosen over simply adapting the flat-file system to handle Y2K?

This is a good place to start the discussion of the systems development process. In this case, major modifications were necessary to make the prior system Y2K compliant. Therefore, rather than modify old technology, it seemed cost effective to devote the time and energy into creating a more flexible, advanced system that would enhance the company's level of integration and last well into the future.

While the concept of creating a new and better system seemed warranted from their feasibility study, the necessity of having the system implemented by Y2K added an important time constraint to the design process.

What are some implementation issues specifically related to SAP R/3?

Lavine, Moyes, and Melville (1997) provide a synopsis of the issues surrounding the implementation of SAP R/3. They itemize the risk factors of selecting SAP, which include the use of old technology, the lack of flexibility, the complexity, and the compatibility with the corporate structure. Hershey's problems centered around the flexibility and complexity issues.

The critical success factors for implementation are also outlined in the Lavine, et al. article. They include: corporate culture assessment; management support; a controlled plan; communication; a strong implementation team; process change analysis; training; organizational commitment; and recognition of exposures in client/server computing. In this situation, Hershey addressed many of these factors. The problems with the system related to an incomplete analysis of the necessary process changes and recognition of the extent of the exposures when converting to the new system.

How could the systems design and implementation have been modified to alleviate the implementation problems?

Given the complexity of the system design and the fact that the new system needed to be running by January 2000, there were several items that could have helped the process. Some general items are presented in an article by Glover, Prawitt, and Romney (1999). Possible suggestions directly related to Hershey are:

1. They should have implemented only the SAP system. Trying to integrate systems from multiple vendors especially given the short time frame made the implementation more complex and allowed for more finger pointing when milestones were not achieved (Osterland, 2000).

2. The more customization required of a package, the more difficult it is to install and maintain. They should have restricted the modifications to speed up the implementation.

3. More lead time should have been built into the project.

4. A major project should not be brought online at the busiest time of the year.

5. The project could have been phased in rather than using the "big bang" approach. Some of the warehouses could have converted while others could have remained with the original system until the bugs were worked out. Alternatively, some product lines could have been used to pilot the system.

6. The system could have been run parallel, but the additional costs of this strategy must be considered.

7. A quality assurance group should have performed a system walk-though. More "what-if" scenarios and other testing should have been performed.

8. More training was necessary.

9. For ERP to be most effective, business processes must change with the computer system. The business process changes, like reorganization of warehouses, should have been made prior to the implementation of SAP.

10. The involvement of the auditors is not clear, but the internal and external auditors should have been heavily involved in the systems development project from the beginning. The instructor can use this question to prompt discussion of potential independence problems given the external auditor's involvement.

Recent articles suggest that the training and organizational issues were the most compelling problems surrounding this, and most other, implementation problems (Heatley, 2000).

From the retailer's perspective, like K-Mart, what are some risks of partnering agreements?

Entering into Vendor Managed Inventory agreements makes the retailer more dependent upon the supplier and reduces flexibility. Economies of scale can be achieved through these agreements only if the supplier can dependably restock inventory. Potential problems with the supplier would make the retailer wary of such agreements. The internal auditors, and the lawyers, should review the partnering agreements to ensure that the retailer does not have excessive exposure to supply problems such as these.

As the external auditor, how would the above affect your audit of the 1999 statements?

The risks for the 1999 statements have increased because of the new system. The audit risk model relates inherent, control, and detection risk to audit risk. Given the problems discussed, the control environment was weakened during the implementation process since the competence of the employees with the new system was reduced. The problems encountered relate to the evaluation of control risk and the resultant changes required to reduce detection risk.

1. More testing of the controls should be done. Given the difficulties, it is likely that controls were bypassed or omitted to fix some system problems.

2. Since Hershey experienced problems with order fulfillment, additional tests should be performed on the inventory. Given the problems reported, duplicate deliveries may have been made and not reported by the customer. Some deliveries may have been recorded and never received by the customer. Both existence and completeness of the records would have to be verified more extensively.

3. A sample of completed transactions both before and after implementation should be selected and the documentation reviewed. A checklist of the problems detected during conversion should be analyzed to ensure that the proper corrective action was taken.

4. Systems documentation should be reviewed and verified to assure it corresponds to the current system.

5. The auditor should review the system to assure it is Y2K compliant.

6. Separation of duties would need to be reassessed under the new system.

7. System calculations should be verified, security reviewed, and authorizations checked.

How might the audit change after the new system is in place?

More computer-assisted auditing techniques would probably be used. ACL or other computer-assisted software could be used to gather and evaluate data. Auditing through the computer may be necessary to verify transactions. Test data techniques will probably be used to test some controls. SAP produces authorization tables that would be examined and verified by the auditors. Additionally, if the instructor desires, this is a good place to review controls necessary for any database system.

How might the internal auditor be affected by the new system?

The internal auditor could introduce audit hooks into the new system to create an audit file for particular transactions that require follow-up. The internal auditors also should monitor the efficiencies of the new system. They are partially responsible for ensuring that efficiencies are achieved with the new system. The article by Roesch and Henry (1997) provides additional components of auditing a client/server system that can be discussed and Lavine, et al. (1997) discuss some specific areas for internal audit involvement in both the design and evaluation phase of SAP implementation.

What do you believe the consultant's liability should be in this case? Provide your assumptions and rationale.

This is a good discussion question. Some students strongly believe that it is Hershey's duty to make sure that implementation goes smoothly, citing possible political problems that may have resulted in the delays. Also, they contend that companies know that the people selling the consulting services are not the ones that provide the service. This is common industry practice so the "bait and switch" argument is unfounded. Additionally, firms do not want to pay for experts when less senior staff can perform the task. Most firms would be unwilling to pay partner rates for programming, for example.

Other students believe that while the consultants may have contributed to the problems, the difficulty in isolating the amount of the loss attributable to them negates any ability to collect. The instructor can point out that this is a somewhat naive view given recent jury awards.

Normally students maintaining that the consultants are liable are in the minority. Some argue that the consultants should refund a portion of the fees because the job was not completed in a satisfactory manner. Finally, a few believe the consultants are liable for the entire amount especially if the bait and switch defense can be proven.

What is an alternative explanation for the implementation problems?

While the implementation problems did impact deliveries, the timing of the disclosures appears to coincide with a downturn in profits. The company was engaged in a major restructuring involving the sale of non-core business divisions and

the repurchase of stock. The instructor can ask students which would result in a more serious stock price reduction:

1. A decrease in sales due to a change in demand, or

2. A reduction in sales due to a modern, efficient distribution system that initially contained a few bugs?

By stating that the downturn in sales was due to a systems implementation problem that would be solved quickly, perhaps the company was able to divert attention from other more serious reasons for the downturn in revenues.

There is no evidence that Hershey disclosed system problems to deflect concerns about fundamental earnings problems, but Jim Shepherd, senior vice president of research at AMR research is quoted as saying:

> Blaming the failure on a system implementation has become a convenient excuse for companies that have missed their quarter-end [earnings] target. (Wheatley, 87)

A FINAL NOTE

In December of 2000, Hershey named a new Chief Operating Officer and Chief Information Officer. The CIO position was newly created and Richard Bentz, the company's vice president of IT integration during the system implementation, reports to the new CIO.

Computer problems are no longer an issue at Hershey with third-quarter 2000 profits up 23% over the same period in 1999. One source reports that Hershey is now a happy SAP customer (Songini, 2000).

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