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ERP Implementation Failure at HP

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“We executed poorly on the migration. The migration was more disruptive than we’d anticipated.”¹

Carly Fiorina, Former Chairman and Chief Executive Officer, HP.

“We are very well aware of the difficulty of integrating systems and business processes and are taking steps to fix it, but we weren’t aware of this in time.”²

- Gilles Bouchard, Chief Information Officer, HP.

INTRODUCTION

In August 2004, HP announced that its revenues for the third quarter ended July 31, 2004, from its Enterprise Servers and Storage (ESS) segment had gone down by 5% to \$3.4 bn, as compared to the same quarter the previous year. The company attributed this revenue shortfall mainly to the problems faced in migrating to a centralized ERP system at one of its North American divisions. The total financial impact of the failure including backlogs and lost revenue was pegged at \$160 million, more than five times the cost of implementing the ERP project.³

Industry analysts raised questions as to HP’s credibility as a consultant for SAP ERP implementations. In the role of a consultant, HP’s primary responsibility was to prevent exactly such execution problems on which it had faltered. Its “Adaptive Enterprise” concept focused on the use of IT to help companies adapt to change in a quick and effective way (Refer Exhibit I for details). The failure demonstrated the adverse financial and business impact of poor ERP implementation for an IT company, especially if it took on the role of a consultant for implementations.

HP conducted an internal investigation to review the causes of failure of the ERP project. The report revealed that the major problem did not relate to SAP⁴ software but to execution related issues. It was found that the technical glitches were small but the contingency planning for the ERP project implementation had left many issues unaddressed. HP claimed that the data modeling problems between the new SAP software and the legacy system involved were of a minor nature, and it did not hold SAP responsible for the failure. Commenting on the debacle, Joshua Greenbaum, Consultant at Enterprise Applications Consulting, California, said, “It’s surprising that good software could take a company down like this. It doesn’t get more embarrassing than that.”⁵

¹ Ashlee Vance, HP: The Adaptive Enterprise that can’t adapt, The Register UK, August 13, 2004.

² Rene Boucher Ferguson, Migration Woes Cause HP Backlog, September 13, 2004.

³ AMR Research had estimated the cost of the project to be \$30 million.

⁴ SAP is an acronym for Systems Applications Products. It is the biggest European software company headquartered in Germany. It had revenues of Euro 9.76 bn and profits of Euro 1.70 bn in fiscal 2004.

⁵ Marc L. Songini, HP Puts Part of the Blame on SAP Migration, Computerworld, August 16, 2004.

BACKGROUND NOTE

Stanford engineers Bill Hewlett and David Packard started HP in California in 1938 as an electronic instruments company. Its first product was a resistance-capacity audio oscillator, an electronic instrument used to test sound equipment. During the 1940s, HP's products rapidly gained acceptance among engineers and scientists. HP's growth was aided by heavy purchases made by the US government during the Second World War.

During the 1950s, HP developed strong technological capabilities in the rapidly evolving electronics business. In 1951, HP invented the high-speed frequency counter, which significantly reduced the time required to measure high frequencies. The company came out with its first public issue in 1957. HP entered the medical equipments industry in 1961 through its acquisition of Sanborn Company. In 1966, the company established HP Laboratories, to conduct research activities relating to new technologies and products. During the same year, HP designed its first computer for controlling some of its test-and-measurement instruments.

During the 1970s, HP continued its tradition of innovation. In 1974, HP launched its first minicomputer that was based on 4K dynamic random access semiconductors (DRAMs) instead of magnetic cores. In 1977, John Young was named HP president, marking a transition from the era of the founders to a new generation of professional managers.

In the 1980s, HP emerged as a major player in the computer industry, offering a full range of computers from desktop machines to powerful minicomputers. This decade also saw the development of successful products like the Inkjet and LaserJet printers. HP introduced its first personal computer (PC) in 1981, followed by an electronic mail system in 1982. This was the first major wide-area commercial network that was based on a minicomputer. HP also introduced its HP 9000 computer with a 32-bit super chip. HP became a leader in workstations with the purchase of market leader, Apollo Computers, in 1989.

In 1992, HP reinforced its cost cutting efforts and reduced the prices of its PCs. HP also combined its PC, printer, UNIX workstation, and customer support operations in 1995 into an integrated computer division. In 1997, HP acquired electronic transaction company Verifone⁶ for nearly \$1.2 bn, to strengthen its capabilities in Internet commerce. HP's capabilities in Internet security and Verifone's expertise in handling financial transactions were expected to complement each other. During 1997, lower demand caused a drop in growth to below 20% for the first time in five years, and HP responded by reorganizing its printer and other operations. In the first quarter of 1999, HP spun off its test-and-measurement equipment division, into a new \$8 bn business. Analysts felt that the spin-off reflected the increasingly cut-throat competition in the computer industry.

In 2001, HP emerged as the second largest computer manufacturer in the world, and was also the market leader in desktop computers, servers, peripherals and services such as systems integration. Besides computer related products and services, which accounted for more than 80% of sales, the company also made electronic products and systems for measurement, computing and communications.

HP operated numerous production facilities around the world and marketed computers, printers, data storage media, and peripherals. The company's offerings spanned IT infrastructure, global services, business and home computing, and imaging and printing. HP's businesses were structured into seven business segments (Refer Exhibit II for details of business segments). For the financial year ended October 2004, the company had revenues of \$80 billion and net profit of \$4.2 billion (Refer Exhibit III for segment-wise revenues). HP's 150,000 employees served more than one billion customers in 160 countries worldwide. It was ranked #11 as per the Fortune 500 ranking in 2004 (Refer Exhibit IV for product leadership details.)

⁶ Founded in 1981, Verifone develops automated credit card and smart card transaction systems.

HP had a close partnership with SAP to offer specialized consulting services for implementation of SAP's supply chain and ERP software. This partnership had been instituted in 1989 when SAP began developing its SAP R/3 product. SAP R/3 is a standard business software package for client server architectures. The software includes applications for accounting and controlling, production and materials management, quality management and plant maintenance, sales and distribution, human resources and project management. The first SAP R/3 system was deployed on an HP 9000 Enterprise Server in 1992 at Wuerth, a leading distributor of mechanical and electrical equipments based in Germany. HP and SAP had established their headquarters for providing joint Internet solutions in Walldorf, Germany; where proof-of-concept methodology development and performance tests on SAP solutions were carried out. As more than 50 per cent of SAP customers used HP's infrastructure to run the ERP software installations, they preferred HP's consultancy services for greater accountability and faster implementations.

THE ERP IMPLEMENTATION

HP's products were known for excellent quality and reasonable prices. HP had a highly decentralized organizational structure and every business unit independently designed, marketed and manufactured its own products. In the early 1990s, as the electronics industry started booming, the era of mass production in the industry began. In the light of this development, HP redesigned its business strategy to venture into the high-volume low-priced electronics market.

In 1992, HP witnessed a huge increase in sales volumes of printers and computers from resellers and direct-consumers. In the light of increasing demand for its products, HP decided to re-organize its business processes to manage its complex manufacturing and logistics operations efficiently. The company planned to phase out its numerous legacy systems and replace them with SAP R/3 as the standard ERP solution worldwide.

SAP R/3 IMPLEMENTATION

The goals set for this business process reengineering (BPR) initiative were:

- Shorter lead and delivery times.
- Cost savings.
- Establishment of a global distribution system.

HP selected the SAP integrated R/3 suite of client/server applications software as it provided a high level of functionality for global use. In 1993, HP's BCMO unit began the project with the implementation of several modules including Materials Management (MM), Product Planning (PP), parts of Financial Accounting (FI) and Controlling (CO). The group worked on the implementation of the FI and CO modules on a global scale. Sales and Distribution module (SD) was implemented as part of the pilot project. HP wanted to implement the R/3 software to function as a large distributed application system covering all relevant business processes throughout the world (Refer Table I for details).

By December 1998, HP had completed its major deployment and migration to SAP R/3 system. The implementation of the SAP Sales Configuration Engine⁷ enabled e-commerce capabilities for selling and configuring products on HP's direct-to-consumer e-commerce website⁸. HP undertook further incremental deployments of upgraded versions of SAP R/3 as business needs changed.

⁷ SAP Sales Configuration Engine (SCE) is used to bring the power of SAP R/3 Product Configurator to remote workstations and mobile laptops. It enables remote configuration for business scenarios involving interactive desktops, laptops, and Internet-based use of existing R/3 information. SAP SCE harnesses Java technology, R/3 functionality, and enhanced configuration concepts.

⁸ The HP Shopping Village (www.hpshopping.com) is HP's consumer e-commerce website.

Table I
R/3 Installation at HP (BCMO)

• R/3 modules: MM, PP (Released 2.2 C) / Planned: Release 3.0 with FI, CO, Asset Management (AM), MM, PP, SD, Project Systems (PS), Project Management (PM). • Hardware: One database server HP 9000 / T500 with HP-UX 9.04, three application servers HP 9000/G70, 200 clients (workstations/PCs). • Network: (Fiber Distributed Data interface) FDDI. • Database: Informix Online6.0

Source: www.sap.com.

IMPLEMENTATION OF MySAP

By 2000, HP had become keen to make web-based activities more simple, direct, and effective. At this stage, HP had over 20 SAP R/3 implementations representing FI, PP, MM, SD, CO, Business Intelligence (BW), Advanced Planning and Optimization (APO) and Warehouse Management (WM). These implementations were based on different versions and had multiple SAP Graphic User Interfaces (GUIs). The user base for these applications was around 10,000. Since HP was already using SAP R/3 software, it considered SAP's Internet-enabled technology product – MySAP⁹ as a good fit for its business. The implementation of MySAP solution would reduce the huge costs incurred on IT support and deployment because everything would run on a browser. It would also provide employees with a single, tightly integrated front end to the entire SAP back end. It would eliminate the need to create custom SAP interfaces which would not only save cost but also provide greater speed in implementation. The solution also had the functionality to query SAP R/3 systems and would make it easier for users to access the right information at the right time.

By early 2001, the demands placed on HP's supply chain and data workflow had increased tremendously. Hence, HP decided to implement MySAP APO module, the central element of MySAP Supply Chain Management (SCM). The rationale was to enable the company to develop a single backbone to link employees, customers and partners. HP had been facing difficulties in cases where an order was received for items from more than one product line. The company was unable to issue one order confirmation, make one delivery note, and print one invoice for all the items ordered. Instead, the customer received a separate order confirmation, delivery note and invoice for each individual product line. HP wanted to ship products faster and with greater operational efficiency. The company worked out an agreement to allow its IT department to work with SAP on an ongoing basis to enhance and evolve MySAP.com functionality in areas such as product life-cycle management, planning and optimization, and business intelligence. HP aimed at achieving localization as well as globally consistent control with sufficient planning capabilities for its supply-chain members. The main aim was to cut costs, increase transparency, and equip HP to embrace new business models rapidly.

The SAP APO and MySAP SCM software were first implemented in the European Imaging and Printing division. Based in Böblingen, Germany, the division sold HP printers and printer accessories throughout Europe. The MySAP solution aimed to provide the division with the latest forecasting procedures and to enable integration of relevant data in a single system. The objective was to make forecasting more accurate and specific to European requirements. Earlier, with each

⁹ MySAP.com is an e-business platform that enables, employees, customers, vendors and business partners to work together at any time, any place. In 2001, it was enhanced to form MySAP Technology, an architecture that permits enterprises to integrate a wide variety of IT systems (www.sap.com).

system producing a different forecast, there was a little chance of tallying the resulting decision, and therefore delivery bottlenecks frequently occurred. This project took just five months to complete and introduced new configuration and pricing capabilities. The company achieved substantial benefits from this implementation (Refer Exhibit V for the benefits). After the successful implementation at the European Imaging and Printing division, HP decided to implement MySAP SCM at a number of other HP manufacturing and distribution facilities worldwide.

After its merger with Compaq Computer Corporation¹⁰ in May 2002, HP had started overhauling the supply chains of all its businesses in order to create five standard supply chains, supported by standard technology platforms. The company introduced the concept of the adaptive supply chain in which the printers could be produced by a contract manufacturer and shipped directly to the customers. HP also implemented the MySAP Product Life Cycle Management (PLM) module to integrate the product lines of the two merged companies. The task was challenging as there were around 200,000 products and more than 100,000 suppliers. The objective was to have accurate and consistent life cycle data to reduce the complex infrastructure and support costs. It helped HP to achieve operational excellence and enabled its customers and partners do business in an easier way.

ERP MIGRATION FAILURE

In December 2003, Gilles Bouchard (Bouchard) became the CIO and Executive Vice-president (EVP) of global operations at HP. He was made responsible for both the supply chain and ERP software implementations. In January 2004, he held a meeting with key operational leaders of HP to create a new organizational model. The model aimed to merge the Business and IT groups at both regional and country level. This operation was officially completed by HP on May 01, 2004 and had led to increased interdependencies between groups in the company. The migration of the Industry Standard Server (ISS) division, one of the biggest divisions of HP with \$7.5 billion of annual revenues, onto ERP systems was also simultaneously completed in May 2004. This was the 35th migration in HP and was a part of the Business Process Architecture project at HP. Through this project, HP aimed at reducing its 35 ERP systems implemented worldwide to four ERP code bases along with a reduction in applications from 3,500 to 1,500.

HP had adopted a business-process-based approach that combined IT with business objectives. HP had cherished the ambition to implement a single order management system for quite some time. The company had managed to reduce the number of different order management systems to seven but it aimed to achieve greater efficiency and flexibility with the implementation of SAP Fusion Order Management (FOM) Platform. Through this platform, HP was working to unite its SAP order management systems with those from Compaq. It involved a migration from separate HP and Compaq legacy SAP R/3 order management systems to a new, broad-based SAP ERP system. It involved more than 70 supply chain systems and also included an upgrade to SAP R/3 Version- 4.6C.

HP executives expected that the new SAP system would enable customers to receive exact product build and delivery dates without placing multiple orders. Peter Blackmore, HP's Executive Vice President in charge of the Customer Solutions Group¹¹ held overall responsibility for the division. The project involved Jim Milton, Managing Director, Americas region and Kasper Rorsted, Managing Director, Europe, Middle East and Africa (EMEA) region. The project execution was overseen by Christina Hanger, Senior Vice President, Americas region.

HP framed the contingency plan to include both the technical and business aspects. The company anticipated disruption of three weeks for IT problems and catered to the business aspect by taking over a portion of an empty factory at Omaha as a provider of buffer stock for any customized

¹⁰ Prior to the merger, Compaq had revenues of \$42.4 bn and incurred a loss of \$569 mn in 2000.

¹¹ The group was formed in December 2003 to manage direct sales to enterprise and public-sector customers worldwide.

configuration orders.¹² As soon as the project went live in June 2004, migration problems began to surface. Around 20% of the customer orders for servers could not move from the legacy order system to the new SAP system due to programming errors. HP fixed these errors within a month. However, orders began to backlog and the company did not have enough manual processes in place to be able to meet the demand. The project team had not been able to adequately comprehend the business repercussions of the data integration¹³ problem.

The internal investigation team found the following causes of the ERP migration failure:

Project Team Constitution: Difficulties in program management arose due to the high level of dependence among the teams. There were problems of communication between the varied groups. For example, smooth communication flow between back-end logistics group and the order-taking group at the front end could not be maintained.

Data Integration Problems: These problems surfaced between the legacy system and the new SAP system being implemented, as soon as the implementation went live. Lack of effective product training and improper product data management were identified as the major causes of these problems.

Demand Forecasting Problems: The division could not predict the actual demand for customized server products which turned out to be 35% higher. The division's contingency planning team had planned for a buffer inventory of three weeks on an assumption of 50:50 ratio of sales of standardized servers and customized servers. The additional orders could not be handled by the Omaha factory.

Poor Planning and Improper Testing: In retrospect, company officials felt that pre-implementation preparation activities were not planned properly. The system had been tested for standardized orders but it was not adequately tested for customized orders because the marketing team failed to envision all the configurations, customers could order. When the system went live, some orders passed through the system while some were unaccounted for. The contingency plan was inadequate to handle this situation as it was only an expanded version of an old plan which had been used for earlier migrations and did not involve in-depth assessment of the ISS division.

Inadequate Implementation Support/Training: The IT personnel were subjected to the new technology without having adequate time to develop their skills for the new system. The customer service representatives were given training two weeks in advance and they had cleared the proficiency tests. However, due to inadequate revision they made mistakes when the implementation went live. This worsened the order backlog situation. Later, refresher training was launched but by that time it was too late to be beneficial as order backlogs kept increasing to unmanageable levels. In the words of Bouchard, "We had a series of small problems, none of which individually would have been too much to handle. But together they created the perfect storm."¹⁴

Analysts commented that probably the company culture had not allowed for much active involvement of employees, and as a result the problems which surfaced ultimately became more and more difficult to overcome. The company seemed to have ignored valuable suggestions from employees. Media reports claimed that many HP insiders knew the project, code-named Fusion, had huge risks despite the company's expertise with SAP migrations. The reports said that the company sales staff had warned that it was not enough on the company's part to choose the

¹² Any combination that may require an unusual configuration of hardware or software that could not be made and stocked beforehand.

¹³ Data integration refers to the transfer of master data including customer master, material master, budget head, employee list, etc from a legacy system. It also involves the transfer of a large number of earlier transactions (pending transactions for completion and archived transactions for analysis). The process sometimes requires reconciliation of the data available on different hardware and software platforms.

¹⁴ Christopher Koch, When Bad Things Happen to Good Projects, CIO Magazine, December 01, 2004.

traditionally slowest quarter for the rollout. The staff had suggested that some kind of backup system should be put in place to overcome failure risks but the company's top management turned a deaf ear to this.

Many Vice-presidents across HP, including those in the ESS division, had left the company to join rival firms. Analysts felt that this high attrition must have affected project implementation. A survey of employees at HP cited that employees had been under a steady fear of layoffs. It also revealed that there was ample distrust of upper management and they were perceived as being overpaid and inefficient. Some employees pointed to a cultural divide within the company which they felt was a matter of serious concern leading to non co-operation between the IT management team and the business team.

Most analysts felt that HP had traditionally been very systematic, risk averse and slow; Compaq's culture had been very aggressive and risk loving. And, as one employee said, "The fissures, between these groups now seem to be resulting in serious operations problems and not just vocal attacks."¹⁵ Crawford DelPrete, an analyst with IDC, agreed, "While issues came to light from the system migration troubles, they are rooted in the changes taking place."¹⁶ Analysts suggested that HP should have hired an outside operations chief for strict control over operational issues.

THE IMPACT

The ISS division's order system became unstable due to problems with data integrity and a simultaneous increase in demand for HP's Standard Servers. This technical glitch led to improper routing of orders and caused backlogs to escalate till the end of August 2004. The above problem not only had an impact on ISS business but also affected the Business Critical and Storage businesses. The company could not fulfill all orders and it led to loss of sales. Bill Swanton, analyst at AMR Research¹⁷ said, "It's a classic problem with ERP systems – everything you do has a financial impact."¹⁸ The company had to service the direct orders through distributors and other orders through flight to speed up order fulfillment. This led to additional expenses for the company and affected its profits. HP's customers were unhappy and there were continuous complaints about delayed processing, systems with wrong configurations and even duplicated orders. HP's employees had to hand-label shipments of products like the million-dollar Superdome servers.

By mid-August 2004, HP's officials were confident that the problem would soon be under control. Joe Nadler, Director in HP's enterprise group said, "From a structural perspective, we are well beyond identifying what the issues were and are now moving to complete the necessary fixes. We should be fully recovered by the end of August. We have a war room and escalation process so that we can deal with significant customer issues."¹⁹

However, many HP's customers disagreed with this assessment, and the company's order management problems continued till late September 2004. According to Ulf Zimmermann, IT manager at AutoTradeCenter.com and an HP customer, "Any order we have placed with HP in the last eight-plus weeks has been delayed, and not a single Customer Quoted Delivery Date was correct. I got orders put in the beginning of August, which were supposed to be shipped by end of August, with a new delivery date of mid-October. At the same time they quote ship dates that are two weeks sooner for the same products if ordered today."²⁰

¹⁵ Ashlee Vance, HP's PC biz braced for SAP hell, The Register UK, January 24, 2005.

¹⁶ Rene Boucher Ferguson, Migration Woes Cause HP Backlog, September 13, 2004.

¹⁷ Headquartered at Boston, US, AMR Research provides industry-leading information and advice on how business strategy drives technology adoption.

¹⁸ Marc L. Songini, Bungled ERP Installation Whacks Asyst, Computerworld, January 10, 2005.

¹⁹ Ashlee Vance, HP's Order System Chaos to Continue Through -out August, The Register UK August 17, 2004.

²⁰ Rene Boucher Ferguson, Migration Woes Cause HP Backlog, September 13, 2004.

Media reports raised questions as to why HP did not blame SAP in public for the failure. Analysts suspected that since HP and SAP had worked together on numerous large revenue deals, this relationship prevented HP from accusing SAP. They speculated that if this was true then HP was in deep trouble as it had based its corporate strategy on the Adaptive Enterprise concept. This concept was supposed to give it an edge over its rival IBM's²¹ concept of On-Demand Computing²². In its role as consultant, HP was supposed to assist customers in their ERP roll-outs by ensuring that problems like sudden order system failures or demand escalations were checked. HP claimed to have great capabilities to handle such problems. However, it appeared unable to handle the same problems within its own company.

Many analysts felt that the failure was due to project execution errors rather than any problems with the SAP software. Earlier, HP had collaborated with SAP to provide solutions designed specifically for difficult SAP supply-chain software implementation (Refer Exhibit VI for details on the collaboration). Experts commented that the ERP implementation failure reflected badly on HP's capabilities. However, HP defended itself saying that it was a rare occurrence. The company claimed that it had not lost a single order because of the failure. According to Bouchard, "We've got so much experience in this, and we've done so many good migrations, and we've been very upfront about what happened in the third quarter."²³

THE LEARNING

Analysts commented that ERP implementation failure at HP was a demonstration of how such failure could impact overall business performance. HP had spent huge amounts of money in speeding up delayed orders. Experts were of the opinion that every implementation of an ERP package warrants a fresh approach and if it's not mapped out in detail, it might miss its objectives. They added that ERP essentially involved a business change in many divisions of an organization and therefore there could be no standard approach to its implementation. Analysts felt that this was precisely the reason why the success of an ERP implementation depends upon how well it had been planned. The planning ought to consider the business aspects along with the technical aspects.

Analysts said that a major issue that was brought to light was the inadequacy of existing business processes. HP officials accepted that they had tried to install ERP software to reflect the existing order processing system which itself was inadequate to handle the increased demand. Accepting this, Bouchard said, "We should have had additional manufacturing capacity ready before the ERP rollout."²⁴ Analysts also stated that no amount of advanced information technology could offset the problem of a flawed business strategy and poor business processes.

Experts pointed out that business contingency planning was still playing a second fiddle to IT project management. They feared that the problem could worsen when companies consolidate their business processes even further on fewer and more powerful systems. According to Bill Swanton, Vice-president of research for AMR Research, "The potential benefits to the supply chain are much bigger than the IT costs in projects like this, but the potential risk to the supply chain is also much bigger."²⁵

²¹ Headquartered at New York, US, IBM is the largest IT Company in the world. In the fiscal 2004, the company reported revenues of \$96.3 bn and profits of \$8.4 bn.

²² On-demand (OD) computing is an enterprise model in which computing resources are made available to the user as needed. The resources may be maintained within the user's enterprise, or made available by a service provider. The model was developed to enable an enterprise to meet fluctuating demands efficiently by fulfilling peak requirements and simultaneously maintaining low costs.

²³ Patrick Thibodeau and Don Tennant, HP's CIO Details Company's ERP Migration problems, Computerworld, September 22, 2004.

²⁴ Christopher Koch, When Bad Things Happen to Good Projects, CIO Magazine, December 01, 2004.

²⁵ Christopher Koch, When Bad Things Happen to Good Projects, CIO Magazine, December 01, 2004.

ERP experts opined that business evolution of ERP was more about project management rather than software tools (Refer Exhibit VII for top ten project management issues). The success of an ERP implementation could be assessed by its ability to align IT and business management objectives, program management skills and a well-defined process for success. They identified three basic building blocks to a successful ERP implementation. These included defining the requirements; developing a plan; and implementing it with technology integration and user training.

Analysts held the view that even in a retrospective analysis, HP could not have envisioned all the configurations for customized orders. Also, a rollback plan was also impossible to implement because the huge scale of orders would not allow the time and resources to maintain and reconcile orders between the two systems. Underlining the importance of contingency planning for ERP projects, Christopher Koch, executive editor of CIO remarked, “This disaster could have been prevented – not by trying to eliminate every possibility for error in a major IT system migration, which is virtually impossible, but by taking a much broader view of the impact that these projects can have on a company’s supply chain.”²⁶ Experts felt that at best, HP could have planned for a manual back-up (Refer Table II for lessons in Business Contingency Planning).

Table II
Business Contingency Planning

Suggested Action	Objective
Create a cross-functional team	To engage business people and educate them about the supply chain risks of a major system rollout.
Develop a transition plan	To ready solutions assuming the new system would fail during final rollout. To create a conservative time estimate for the period the new system is expected to be down.
Devise manual processes	To keep orders and deliveries flowing during the problem period. To ensure that there are extra people and factory capacities available to handle the extra workload.

Source: Christopher Koch, When Bad Things Happen to Good Projects, CIO Magazine, December 01, 2004.

The fiasco also emphasized the need to integrate business and technology. Experts commented that companies should strive to remove the barriers to create effective cross-functional processes and teams that were truly integrated. Above all, they ought to encourage dialogue that would motivate employees to have a focused approach and help in early identification and rectification of problems.

In January 2005, HP was once again in news for its product ordering problems. The company was planning to implement the same SAP-based ordering system in its PC business under the project code-named Genesis. With this project, HP aimed at improving its ability to handle direct sales. The SAP software would enable customers to order customized products helping HP compete with Dell Computer Corporation²⁷. Insiders said that once again a real-time ordering mechanism was being forced onto a system not capable of handling it.

The insiders added that there was an expert group that had all the know-how about SAP implementation but this group was being dominated by the same IT management group which handled the earlier ERP rollout. This was resulting in problems at the HP plants in Huston and

²⁶ Christopher Koch, When Bad Things Happen to Good Projects, CIO Magazine, December 01, 2004.

²⁷ Headquartered in Round Rock, Austin, US, Dell is the world’s largest direct seller of computer systems. The company is also the largest PC seller in the US. It had revenues of US\$49.2 bn and profits of US\$ 3.04 bn for the year 2005.

Brazil, which were being considered for the implementation. One insider remarked, “One of these managers wants to keep an old application in the new system just because he wrote it. They’re trying to cram a legacy shipping system into a real-time ordering system. The legacy stuff just doesn’t work the way it needs to.”²⁸

ASSIGNMENT QUESTIONS

The following questions can be given as a class exercise. Students can either submit written assignments individually or present the answers of these questions after discussing them in groups:

1. Analyze the limitations of IT project management. Do you think business contingency plans are necessary for all enterprise projects? Justify your answer.
2. Critically analyze the HR issues involved in HP’s ERP migration failure. How can companies ensure that corporate culture supports their ERP implementation? Explain.
3. Examine the implications of the ERP migration failure considering HP’s role as a consultant for SAP’s supply chain implementations. Can HP use this ERP implementation failure to its strategic advantage? Why/why not? Give reasons for your answer.
4. Industry analysts expressed concerns regarding the re-occurrence of this failure in the ERP implementations by HP in future. What according to you should HP do prevent such failures? Explain giving reasons.

²⁸ Ashlee Vance, HP’s PC biz braced for SAP hell, The Register UK, January 24, 2005.

Exhibit I

HP – The Adaptive Enterprise Concept

An Adaptive Enterprise combines industry-leading solutions, services and products from HP and partners that help companies move quickly to turn challenge into opportunity. The Adaptive Enterprise vision leverages IT to not only support change but to embrace and assert change. It drives business strategy and business processes into the underlying applications and infrastructure to fuel business success. The strategy delivers what a business needs to succeed:

Simplicity	• Reduce IT cost and complexity • Cut operations costs • Implement change faster and easier • Ensure resources work together
Agility	• Adapt in real-time to the business • Drive change (time, range, ease) • Improve business processes • Accelerate time to market
Value	• Unlock the value of assets • Free up resources for innovation • Increase revenues and profitability • Create a competitive advantage
Design Principles	• Simplify • Modularize • Integrate
Key Guideposts	• Standardization • Virtualization • Management • Industry Leadership

Source: www.hp.com.

Exhibit II

HP Segment Description

HP operations were organized into seven business segments:

Personal Systems Group (PSG), Imaging and Printing Group (IPG), Enterprise Storage and Servers (ESS), HP Services (HPS), HP Financial Services (HPFS), Software, and Corporate Investments.

Given the cross-segment linkages in HP's Adaptive Enterprise offering, and in order to capitalize on up-selling and cross-selling opportunities, ESS, HPS and Software were structured beneath a broader Technology Solutions Group (TSG). Although TSG is not a business segment, this aggregation provides a supplementary view of the business.

Technology Solutions Group: TSG's mission is to coordinate HP's Adaptive Enterprise offering across organizations to create solutions that allow customers to manage and transform their business and IT environments. TSG allows the company to leverage the resources and capabilities of our portfolio by applying key design principles consistently across business, application and infrastructure services with a vision of standardization, simplification, modularity and integration.

Enterprise Storage and Servers: ESS provides storage and server products in a number of categories:

- **Business Critical Servers:** Business critical servers include Reduced Instruction Set Computing (RISC)-based servers running on the HP-UX operating system, Itanium (1) - based servers running on HP-UX, Windows(2) and Linux and the HP AlphaServer product line running on both Tru64 UNIX(3) and Open VMS. The various server offerings range from low-end servers to high-end scalable servers, including the Superdome line. It also includes the NonStop fault-tolerant server products for business critical solutions.
- **Industry Standard Servers:** Industry standard servers include primarily entry-level and mid-range ProLiant servers, which run primarily on the Windows, Linux and Novell operating systems and leverage Intel- and AMD-based processors. The business spans a range of product lines that include pedestal-tower servers, density-optimized servers and blade servers. HP's industry-standard server business leads the industry in terms of units shipped and has a strong position in blade servers, the fastest-growing segment of the market.
- **Storage:** HP's StorageWorks offerings include entry-level, mid-range and enterprise arrays, storage area networks, network attached storage, storage management software and virtualization technologies, as well as tape drives, tape libraries and optical archival storage.

Source: HP Annual Report 2004.

Exhibit III
HP's Segment-wise Revenues and Profits

Year ended October 31 (in \$ millions)	2004	2003	% Increase/Decrease
Net Revenues			
Enterprise Storage and Servers	15,152	14,593	4%
HP Services	13,778	12,357	12%
Software	922	774	19%
Total Technology Solutions Group	29,852	27,724	8%
Personal Systems Group	24,622	21,210	16%
Imaging and Printing Group	24,199	22,569	7%
HP Financial Services	1,895	1,921	1%
Corporate Investments	449	344	
Total Segments	81,017	73,768	
Eliminations/Other	(1,112)	(707)	
Total HP Consolidated	79,905	73,061	9%
Earnings from Operations (loss)			
Enterprise Storage and Servers	173	142	
HP Services	1,263	1,362	
Software	(145)	(190)	
Total Technology Solutions Group	1,291	1,314	
Personal Systems Group	210	22	
Imaging and Printing Group	3847	3596	
HP Financial Services	125	79	
Corporate Investments	(178)	(161)	
Total Segments	5,295	4,850	
Eliminations/Other	1,099	1,962	
Total HP Consolidated	4,196	2,888	

Source: HP Annual Report, 2004.

Exhibit IV

HP's Product Leadership Position (2004)

#1 globally in the inkjet, all-in-one and single-function printers, mono and color laser printers, large format printing, scanners, print servers and ink and laser supplies*

#1 globally in x86*, Windows®*, Linux®*, UNIX* and blade servers**

#1 in total disk and storage systems*

#2 globally in notebook PCs*

#1 globally in Pocket PCs*

#1 in customer support**

#1 position in customer loyalty for ProLiant servers

* Refers to units, except storage referred in factory revenue. Source: IDC Q3 2004

** Source: Gartner, November 2004

*** Source: Technology Business Research, Inc., October 26, 2004

Source: www.hp.com.

Exhibit V

Benefits of MySAP SCM Implementation at HP

HP has successfully transformed its supplier-oriented supply chain into a customer-oriented one. It is now scoring high in the two areas that determine success in the printer market: product availability and customer satisfaction. Since implementing MySAP SCM, HP has recorded increases of up to 5% in its forecasting accuracy, and expects this figure to steadily climb as it becomes more familiar with the new system. Measured against the company's colossal sales volumes, increases in forecasting accuracy of just a few percentage points already translate into significant cost-savings through reduced stock levels. What's more, the automatic forecasting function in SAP APO is faster than its manual equivalent and much less prone to human error. Clearly then, the improvements brought about by the new SCM solution have not only bolstered customer service, but are actually saving HP money to boot. The printer division has realized four key benefits from deploying MySAP SCM:

- Better customer requirements planning
- Optimized resource management for materials, capacity, and personnel
- Maximum availability combined with minimum stock levels
- Better response to the various requirements of local markets

Moreover, MySAP SCM has not only enabled the division to slice three whole days off the time required to produce a forecast, but it also ensures that everyone whether they work in sales, marketing or manufacturing is referring to exactly the same data and planning results.

Source: www.sap.com

Exhibit VI

HP and SAP SCM Collaboration

SAP and HP aim to deliver end-to-end SCM solutions based on MySAP Supply Chain Management and HP infrastructures and middleware - for organizing globally distributed value-added chains. As one of the world's largest manufacturers of computers and printers, HP organizes complex supply chains that stretch right around the globe. Yet MySAP SCM has enabled the company to successfully optimize its production operations - making its forecasts more accurate, paring its stock levels right down, and slicing three days off the time previously needed to produce a sales forecast. And, already, these improvements have translated into happier customers and substantial cost-savings. Implementing an end-to-end supply-chain management solution from SAP and HP offers several benefits:

- Happier customers: delivery times are shorter because the solution is tailored to fit the user environment.
- More competitive muscle: accurate forecasts allow a rapid response to changing market conditions.
- Financial savings: automated ordering and trimmed-down stock levels mean lower fixed costs.
- Tried-and-tested algorithms, better system performance, greater PC power, and improved memory allow more accurate and flexible planning/monitoring.
- Experts with practical experience make the implementation quick and hassle-free.
- Fine-tuning and a customer-specific integration.
- Ensure hardware and software deliver maximum availability.
- Information remains secure and reliable beyond departmental and corporate boundaries.

Making all these benefits available to companies in the manufacturing industry and enabling them to enjoy a rapid and trouble-free implementation is the responsibility of the Global Solution Centers. HP's customers benefit from the experience and conceptual expertise of the company through the deployment of MySAP SCM.

Source: www.SAPinfo.com.

Exhibit VII
Top 10 ERP Project Management Issues

Rank	Issue
1	Project Size
2	Staffing (Includes Turnover)
3	Risk Management
4	Unreasonable Deadlines
5	Funding
6	Organizational Politics
7	Scope Creep
8	Unexpected Gaps
9	Interfaces
10	Resistance To Change

*Source: ERP Project Management is Key to a Successful Implementation,
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