Text:  

Grading:  
45% Case Assignments: *The Tao of Timbuk2* – due on 9/3; *Shouldice - A Cut Above* – due on 9/17; *Community Hospital Evening Operating Room* – due on 10/1; *Pepe Jeans* – due on 10/15. For each of the above cases, submit a brief report addressing the case questions. See below for case descriptions and questions. All Case Assignments may be done in groups, but **will not be accepted late.** You may submit as many Case Assignments as you wish, but the **highest three scores** will be averaged for each person.

15% Paper: Due on 10/22. The Paper should focus on a topic related to the subject matter of the course - the topic can involve a particular work environment or be more general. For example, the Paper could present a case study of a real business, including descriptions of: the products or services offered, who the customers are and how the business competes, and operations. Regardless of your choice, the Paper should be no more than 10 pages, double-spaced, in length. Include all references. The Paper may be done in groups, and **will not be accepted late.** Also, be prepared to give a brief presentation on 10/22.

40% Final Exam. On 10/29. The Final Exam will be open book, open notes, and computer usage is allowed.

Course Website on Sakai: Students are automatically enrolled in a Sakai website for this course at the beginning of the term. Access to this course website on Sakai is obtained via [http://sakai.luc.edu](http://sakai.luc.edu). Once you have logged in, select this course. Downloads for the course are available under Resources.

Tentative Outline:

- 8/27: Chapters 1 - 5
- 9/3: *The Tao of Timbuk2*, Chapter 6, Chapter 7
- 9/10: Chapter 7 (continued), Chapter 8
- 9/17: *Shouldice - A Cut Above*, Chapter 8 (continued), Chapter 9
- 9/24: Chapter 10, Chapter 11, Chapter 12
- 10/1: *Community Hospital Evening Operating Room*, Chapter 12 (continued), Chapter 13
- 10/8: Chapter 13 (continued), Chapter 14
- 10/15: *Pepe Jeans*, Review for Final Exam
- 10/22: Paper Presentations
- 10/29: Final Exam
Recently, Timbuk2 has begun making some of its new products in China, which is a concern to some of its longstanding customers. The company argues that it has designed its new laptop bags to provide the best possible features, quality, and value at reasonable prices and stresses that these new products are designed in San Francisco. Timbuk2 argues that the new bags are much more complex to build and require substantially more labor and a variety of very expensive machines to produce. They argue that the San Francisco factory labor cost alone would make the retail price absurdly high. After researching a dozen factories in China, Timbuk2 found one that it thinks is up to the task of producing these new bags. Much as in San Francisco, the China factory employs a team of hardworking craftspeople who earn good wages and an honest living. Timbuk2 visits the China factory every four to eight weeks to ensure superior quality standards and working conditions.

On the Timbuk2 Web site, the company argues they are the same hardworking group of bag fanatics designing and making great bags, and supporting our local community and increasingly competitive global market. The company reports that demand is still strong for the custom messenger bags made in San Francisco and that the new laptop bags sourced from China are receiving rave reviews. The additional business is allowing them to hire more people in all departments at the San Francisco headquarters—creating even more jobs locally.

Questions

1. Consider the two categories of products that Timbuk2 makes and sells. For the messenger bags made in San Francisco, what are the key competitive dimensions that are driving sales? What are the key competitive dimensions for the “ready-made” bags?

2. Compare the operations in China with those in San Francisco along the following dimensions: (1) volume of production, (2) required skill of the workers, (3) level of automation, and (4) amount of finished goods inventory.

3. Where would raw materials for both categories of products likely be sourced? Other than manufacturing cost, what other costs should Timbuk2 consider when making the sourcing decision?
Shouldice Hospital—A Cut Above (Due 9/17)

“Shouldice Hospital, the house that hernias built, is a converted country estate which gives the hospital ‘a country club’ appeal.”

A quote from *American Medical News*

Shouldice Hospital in Canada is widely known for one thing—hernia repair! In fact, that is the only operation it performs, and it performs a great many of them. Over the past two decades this small 90-bed hospital has averaged 7,000 operations annually. Last year, it had a record year and performed nearly 7,500 operations. Patients’ ties to Shouldice do not end when they leave the hospital. Every year the gala Hernia Reunion dinner (with complimentary hernia inspection) draws in excess of 1,000 former patients, some of whom have been attending the event for over 30 years.

A number of notable features in Shouldice’s service delivery system contribute to its success. (1) Shouldice accepts only patients with the uncomplicated external hernias, and it uses a superior technique developed for this type of hernia by Dr. Shouldice during World War II. (2) Patients are subject to early ambulation, which promotes healing. (Patients literally walk off the operating table and engage in light exercise throughout their stay, which lasts only three days.) (3) Its country club atmosphere, gregarious nursing staff, and built-in socializing make a surprisingly pleasant experience out of an inherently unpleasant medical problem. Regular times are set aside for tea, cookies, and socializing. All patients are paired up with a roommate with similar background and interests.

**The Production System**

The medical facilities at Shouldice consist of five operating rooms, a patient recovery room, a laboratory, and six examination rooms. Shouldice performs, on average, 150 operations per week, with patients typically staying at the hospital for three days. Although operations are performed only five days a week, the remainder of the hospital is in operation continuously to attend to recovering patients.

An operation at Shouldice Hospital is performed by one of the 12 full-time surgeons. Surgeons generally take about one hour to perform each hernia operation, and they operate on four patients per day. The surgeons’ day ends at 4 P.M.

**The Shouldice Experience**

Each patient undergoes a screening exam prior to setting a date for his or her operation. Patients in the Toronto area are encouraged to walk in for the diagnosis. Examinations are done between 9 A.M. and 3:30 P.M. Monday through Friday, and between 10 A.M. and 2 P.M. on Saturday. Out-of-town patients are mailed a medical information questionnaire (also available over the Internet), which is used for the diagnosis. A small percentage of the patients who are overweight or otherwise represent an undue medical risk are refused treatment. The remaining patients receive confirmation cards with the scheduled dates for their operations. A patient’s folder is transferred to the reception desk once an arrival date is confirmed.

Patients arrive at the clinic between 1 and 3 P.M. the day before their surgery. After a short wait, they receive a brief preoperative examination. They are then sent to an admissions clerk to complete any necessary paperwork. Patients are next directed to one of the two nurses’ stations for blood and urine tests and then are shown to their rooms. They spend the remaining time before orientation getting settled and acquainting themselves with their roommates.

Orientation begins at 5 P.M., followed by dinner in the common dining room. Later in the evening, at 9 P.M., patients gather in the lounge area for tea and cookies. Here new patients can talk with patients who have already had their surgery. Bedtime is between 9:30 and 10 P.M.

On the day of the operation, patients with early operations are awakened at 5:30 A.M. for preoperative sedation. The first operations begin at 7:30 A.M. Shortly before an operation starts, the patient is administered a local anesthetic, leaving him or her alert and fully aware of the proceedings. At the conclusion of the operation, the patient is invited to walk from the operating table to a nearby wheelchair, which is waiting to return the patient to his or her room. After a brief period of rest, the patient is encouraged to get up and start exercising. By 9 P.M. that day, he or she is in the lounge having cookies and tea and talking with new, incoming patients.
The skin clips holding the incision together are loosened, and some are removed, the next day. The remainder are removed the following morning just before the patient is discharged.

When Shouldice Hospital started, the average hospital stay for hernia surgery was three weeks. Today, many institutions push “same day surgery” for a variety of reasons. Shouldice Hospital firmly believes that this is not in the best interests of patients, and is committed to its three-day process. Shouldice’s postoperative rehabilitation program is designed to enable the patient to resume normal activities with minimal interruption and discomfort. Shouldice patients frequently return to work in a few days; the average total time off is eight days.

“It is interesting to note that approximately 1 out of every 100 Shouldice patients is a medical doctor.”

**Future Plans**

The management of Shouldice is thinking of expanding the hospital’s capacity to serve considerable unsatisfied demand. To this effect, the vice president is seriously considering two options. The first involves adding one more day of operations (Saturday) to the existing five-day schedule, which would increase capacity by 20 percent. The second option is to add another floor of rooms to the hospital, increasing the number of beds by 50 percent. This would require more aggressive scheduling of the operating rooms.

The administrator of the hospital, however, is concerned about maintaining control over the quality of the service delivered. He thinks the facility is already getting very good utilization. The doctors and the staff are happy with their jobs, and the patients are satisfied with the service. According to him, further expansion of capacity might make it hard to maintain the same kind of working relationships and attitudes.

**Exhibit 1**

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Questions

Exhibit 1 is a room-occupancy table for the existing system. Each row in the table follows the patients that checked in on a given day. The columns indicate the number of patients in the hospital on a given day. For example, the first row of the table shows that 30 people checked in on Monday and were in the hospital for Monday, Tuesday, and Wednesday. By summing the columns of the table for Wednesday, we see that there are 90 patients staying in the hospital that day.

1. How well is the hospital currently utilizing its beds, both daily and weekly?

2. Develop a similar room-occupancy table to show the effects of adding operations on Saturday. (Assume that 30 operations would still be performed each day.) How would this affect the utilization of the bed capacity? Is there sufficient capacity for the additional patients?

3. Next, perform a utilization analysis of the proposal to increase the number of beds by 50 percent. (Assume operations are performed five days per week, with the same number performed on each day.) What operating rule would need to be adjusted? How well would the new beds be utilized relative to those in the current scenario?

4. Although financial data are sketchy, an estimate from a construction company indicates that adding bed capacity would cost about $100,000 per bed. In addition, the rate charged for the hernia surgery is an average rate of $1,300 per operation. The surgeons are paid a flat $600 per operation. Perform a payback analysis to determine whether Shouldice should undergo the expansion of beds. Due to all the uncertainties in government health care legislation, Shouldice would like to justify any expansion within a five-year time period. (Hint: a payback analysis determines how long it would take to recoup an initial investment.)
The American College of Surgeons has developed criteria for determining operating room standards in the United States. Level I and II trauma centers are required to have in-house operating room (OR) staff 24 hours per day. So a base level of a single OR team available 24 hours a day is mandatory. During normal business hours, a hospital will typically have additional OR teams available since surgery is scheduled during these times and these additional teams can be used in an emergency. An important decision, though, must be made concerning the availability of a backup team during the evening hours.

A backup team is needed during the evening hours if the probability of having two or more cases simultaneously is significant. "Significant" is difficult to judge, but for the purposes of this case assume that a backup OR team should be employed if the expected probability of two or more cases occurring simultaneously is greater than 1 percent.

A real application was recently studied by doctors at the Columbia University College of Physicians and Surgeons in Stamford, CT. The doctors studied emergency OR patients that arrived after 11 P.M. and before 7 A.M. during a one year period (i.e., 8 hours per day, 365 days a year). During the period of this night shift aggregated over a year, there were a total of 62 patients that required OR treatment. The average service time was 80.79 minutes per patient.

Questions

1. Calculate the average customer arrival rate and average service rate per hour.

2. Calculate the probability of zero patients in the system (P₀), the probability of one patient in the system (P₁), and the probability of two or more patients in the system.

3. Assume the following decision criterion: if the probability of two or more patients in the system is greater than 1 percent, a backup OR team should be employed. Make a recommendation to hospital administration about whether a backup OR should be used.
Pepe began to produce and sell denim jeans in the early 1970s in the United Kingdom (UK) and has achieved enormous growth. Pepe’s success was the result of a unique approach in a product market dominated by strong brands and limited variety. Pepe presented a range of jeans styles that offered a better fit than traditional five-pocket Western jeans (such as those made by Levi Strauss in the United States)—particularly for female customers. The Pepe range of basic styles is modified each season, but each style keeps its identity with a slightly whimsical name featured prominently on the jeans and on the point-of-sale material. Variations such as modified washes, leather trim, and even designer wear marks are applied to respond to changing fashion trends. To learn more about Pepe and its products, visit its Web site at http://www.pepejeans.com.

Pepe’s brand strength is such that the company can demand a retail price that averages about £45 (£1 = $1.8) for its standard products. A high percentage of Pepe sales are through about 1,500 independent outlets throughout the UK. The company maintains contact with its independent retailers via a group of approximately 10 agents, who are self-employed and work exclusively for Pepe. Each agent is responsible for retailers in a particular area of the country.

Pepe is convinced that a good relationship with the independent retailers is vital to its success. The agent meets with each independent retailer three to four times each year in order to present the new collections and to take sales orders. Because the number of accounts for each agent is so large, contact is often achieved by holding a presentation in a hotel for several retailers. Agents take orders from retailers for six-month delivery. After Pepe receives an order, the retailer has only one week in which to cancel because of the need to place immediate firm orders in Hong Kong to meet the delivery date. The company has had a long-standing policy of not holding any inventory of jeans in the UK.

After an order is taken and confirmed, the rest of the process up to delivery is administered from the Pepe office in Willesden. The status of orders can be checked from a Web site maintained by Pepe. The actual orders are sent to a sourcing agent in Hong Kong who arranges for manufacturing the jeans. The sourcing agent handles all the details associated with materials, fabrication, and shipping the completed jeans to the retailer. Pepe has an outstanding team of young in-house designers who are responsible for developing new styles and the accompanying point-of-sale material. Jeans are made to specifications provided by this team. The team works closely with the Hong Kong sourcing agent to ensure that the jeans are made properly and that the material used is of the highest quality.

A recent survey of the independent retailers indicated some growing problems. The independents praised the fit, quality, and variety of Pepe’s jeans, although many thought that they had become much less of a trendsetter than in their early days. It was felt that Pepe’s variety of styles and quality was the company’s key advantage over the competition. However, the independents were unhappy with Pepe’s requirements to place firm orders six months in advance with no possibility of amendment, cancellation, or repeat ordering. Some claimed that the inflexible order system forced them to order less, resulting in stockouts of particular sizes and styles. The retailers estimated that Pepe’s sales would increase by about 10 percent with a more flexible ordering system.

The retailers expected to have some slow-moving inventory, but the six-month order lead time made it difficult to accurately order and worsened the problem. Because the fashion market was so impulsive, the current favorites were often not in vogue six months in the future. On the other hand, when demand exceeded expectations, it took a long time to fill the gap. What the retailers wanted was some method of limited returns, exchange, or reordering to overcome the worst of these problems. Pepe was feeling some pressure to respond to these complaints because some of Pepe’s smaller competitors offered delivery in only a few days.

Pepe has enjoyed considerable financial success with its current business model. Sales last year were approximately £200M. Annual cost of sales was approximately £80M, and annual operating expenses were £56M. The company has no long-term debt and has a very healthy cash position.
Pepe was feeling considerable pressure and felt that a change was going to be needed soon. In evaluating alternatives the company found that the easiest would be to work with the Hong Kong sourcing agent to reduce the lead time associated with orders. The agent agreed that the lead time could be shortened, possibly to as little as six weeks, but costs would increase significantly. Currently, the agent collects orders over a period of time and about every two weeks puts these orders out on bid to about 1,000 potential suppliers. The sourcing agent estimated that cost of sales might go up 30 percent if the lead time were shortened to six weeks, assuming operating expenses remain the same.

The sourcing agent suggested that Pepe consider a second alternative, building a finishing operation in the UK. The agent indicated that a major retail chain in the United States had moved to this type of structure with considerable success. Basically, all the finishing operation did for the U.S. retail chain was apply different washes to the jeans to give them different “worn” looks. The U.S. operation also took orders for the retail stores and shipped the orders. The U.S. firm found that it could give two-day response time to the retail stores. The sourcing agent indicated that the yearly inventory investment cost for the basic jeans (jeans where the wash has not been applied) could probably be reduced, thereby reducing the £80M cost of sales by 10% because the volumes would be higher. In addition, lead time for the basic jeans could be reduced to approximately three months because the finishing step would be eliminated and the orders would be larger. The Pepe designers found this an interesting idea, so they visited the U.S. operation to see how the system worked. They found, however, that they would have to keep about six weeks’ supply of basic jeans on hand in the UK. Assume this additional inventory could be valued at six weeks’ worth of the yearly inventory investment cost for the basic jeans, and that a 30 percent annual inventory carrying cost rate applies. Also, Pepe would have to invest in about £1,000,000 worth of equipment. They estimated that it would cost about £500,000 to operate the facility each year. They could locate the facility in the basement of the current Willesden office building, and the renovations would cost about £300,000. Again, assume Pepe’s sales would increase by about 10 percent because of the shortened lead time.

Questions

1. Acting as an outside consultant, what would you recommend that Pepe do? Given the data in the case, perform a financial analysis to evaluate each of the two alternatives. (Hint: a payback analysis would be appropriate for one of the alternatives.)

2. Are there other alternatives that Pepe should consider? Explain.