Scenario: Smitheford Pharmaceuticals is facing other issues. The company had not kept up with modern manufacturing technology and was in the process of modernizing the injectable manufacturing facilities in Pueblo and Colorado Springs. There were several modernizing scenarios under analysis. Perform cost-benefit analysis calculations for 2 equipment scenarios. The data are provided below. Scheduling the various manufacturing operations has become more complicated. In the 1990s, the Pueblo plant expanded tremendously, based on forecasts for the growth of a promising osteoporosis medication, Osto54. The facility doubled in size, mostly with tanks and processing equipment. Osto54, however, caused heightened enzyme levels in the liver and led to seven deaths in the elderly because of drug interactions. Smitheford faced the loss of millions of dollars in liability suits and had excess intermediate manufacturing capacity in Pueblo. Two years ago, a new immune system treatment, Ultamyacin, was discovered by a Smitheford researcher. The drug could be manufactured at the Pueblo facility for the bulk manufacturing, but the final manufacturing steps could be made in Puerto Rico for final purification and then sent to Fort Collins for final manufacturing into sterile bottles for injection. Smitheford leadership has narrowed the decision making down to 2 options. The first is a higher technology option in one location, and the other is a lower technology option in several locations. High Technology Centralized Location Low Technology Decentralized Annual Fixed Cost $620,000 $110,000 Variable Cost/Product 16.31 18.89 Estimated Annual Production (in number of products) Year 1 100,000 100,000 Year 5 170,000 170,000 Year 10 225,000 225,000 Use applicable business formulas to determine costs for both options. Consider the following questions: Which is the lead cost alternative in Years 1, 5, and 10? How much would the variable cost per unit have to be in Year 5 for the automated alternative to justify the additional annual fixed cost of the automated alternative over the manual alternative? Determine what other factors should be considered when deciding the following: When to centralize manufacturing When to opt for higher technology options