

# Sarah Chang's Dilemma

Sarah Chang is the owner of a small electronics company. In six months, a proposal is due for an electronic timing system for a major sporting event. For several years, Chang's company has been developing a new microprocessor, a critical component in the timing system that would be superior to any product in the market. However, progress in research has been slow, and Chang is unsure whether her development team can produce the microprocessor in time. If they succeed, then Chang's company has an excellent chance of winning the \$1 million contract for the timing system. If they do not, then Chang's company would have to fall back on the current microprocessor that they have, and chances of winning the contract would be slim.

If she continues the project, then Chang must immediately invest \$200,000 in research and development. In addition, making a proposal requires developing a prototype timing system at an additional cost of \$50,000. Finally if Chang wins the contract, then the finished product will need an additional \$150,000 to produce.

Should Chang invest money in research and development?