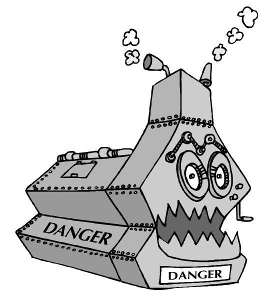
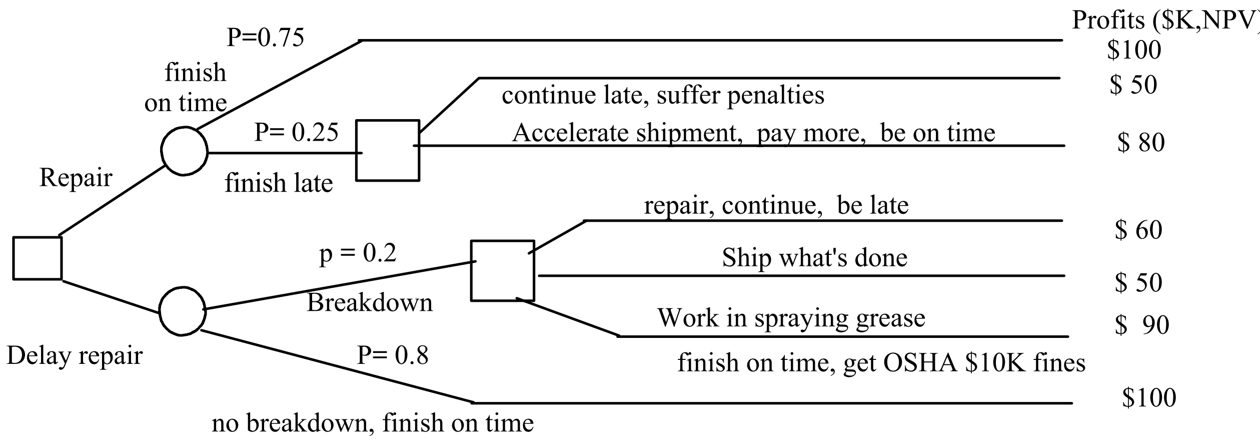
We treat our employees like dirt and pass the savings on to you.



There is a large and lucrative production run scheduled. The equipment is old and ready to break down. If you take time now to repair it, there is a 25% probability of not finishing the product on time and having to pay to accelerate delivery or suffering a penalty. If you don't repair the equipment before starting, there is a 20% chance of breakdown which could delay the finish and give a late penalty, unless you have people work overtime under conditions that would have them sprayed with grease. OSHA would fine you $10 K for doing this to the employees.

This case gives the following decision tree with the Net Present values for each alternative at the terminal nodes:



a) Calculate expected profit for each alternative. Show decisions and expected monetary values at branch points. If you only care about EMV, would you repair the equipment ahead of time or delay the repair?

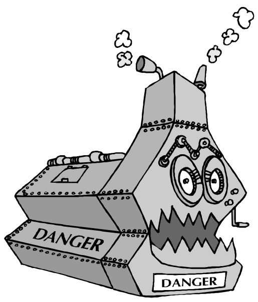
b) How much would it be worth to you to know ahead of time (perfect information) whether or not the unrepaired equipment would break down during the run?

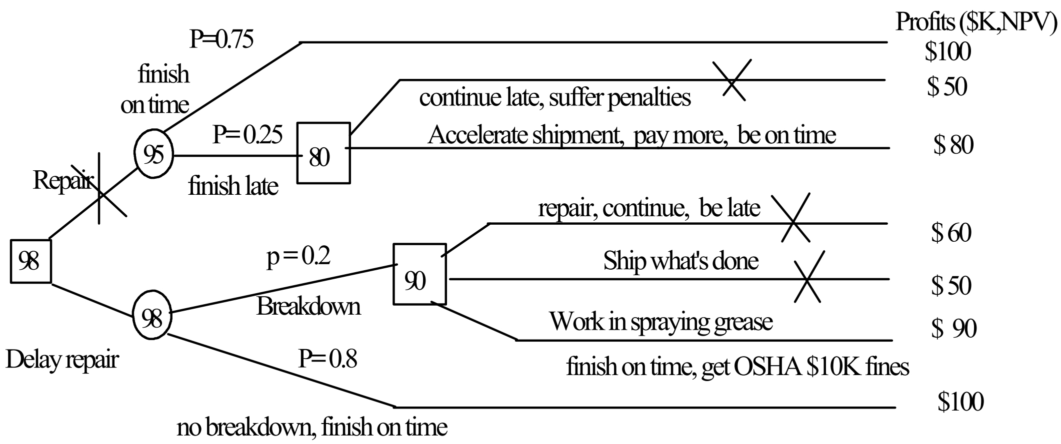
A. $1 K
B. $3 K
C. $ 5 K
D. 0
E. $10 K
F. None of the above
G. All of the above

c) The current payoff for continuing with broken equipment in spraying grease is $90K--The $100K received for delivering the goods on time less the $10K OSHA fine for endangering the employees. What is the minimum OSHA fine that would eliminate monetary incentive (break even) for the company to endanger the employees?

A. $10 K
B. $40 K
C. $25 K
D. $3 K
E. $100 K

Be Careful! Accidents cause paperwork.





The highest EMV is to go ahead without the repair and endanger the employees if it breaks. The OSHA fine would have to be $25K to make repair vs. delay indifferent at EMV=$95K.
Perfect information would lead you to repair if you knew it would break (EMV=95K vs. 90K) or to delay if you knew for sure it wouldn't break (EMV=100K vs. 95K). The result is EMVc=95K*0.2+100K*0.8=$99K.
EVPI=EMVc-EMVr=99K-98*K=$1K