

Case petroil



In one of its first projects, the OLL exploration company Petrol was engineering two sites for two oil exploration wells. Only one may be punctured. The cost of drilling the Site Numerous 1 was \$ 100, 000.

Preliminary geological data indicated that the well could be dry, or be of low productivity or be highly productive. He had signed a contract with a development company to buy the site if a well by drilling success you had. The buyer would pay \$ 250, 000 for a well of low productivity and \$ 600, 000 for high productivity well.

If the well was dry, Petrol lose \$ 100, 000 of the cost of drilling. By that time, the company geologist, Jane Goodwill, was unsure about the existence of a structural dome that site. A dome structure is a kind of anticlines (geological rock deformation formed as a curved folds as strata tectonic stress resulting from various types) raised to a certain depth by the accumulation of oil and the increase of the pressure produced by the natural gas. Structures are ideal for the accumulation of oil. She assigned a probability of 0.6 to the existence of a structural dome.

Their assessments for dry, low, or high productivity wells were conditioned to geological structure. Table 1 shows the odds by estimated conditions. The geologist would either give the information in this way though as she said, "we will never know for sure if there is a structural dome, up to drill." TABLE 1 Geological structure Well With No Doom Doom Dry 0.60 0.85 Low 0.25 0.125 High 0.025 0.15 1.00 1.00 Furthermore, the site No. 2 was quite different, the area had been thoroughly examined using seismic testing and core samples.

A core sample is a method directly by taking witnesses or cores (cores), collect rock samples taken within drill pipe, in which you can perform direct measurements of the petrochemical characteristics of the geological formation. There was almost certainly oil. The geologist assigned a probability of 0.8 of finding oil there. The drawback to this place was that drilling costs were high, \$200,000, and if oil is found, the well would be low productivity of oil. A contract was also signed with the same development company to buy the well of low production at Site No. 2 for \$250,000.

To help decide between the two sites, each drill site. Using the decision tree diagram a decision tree diagram should be developed for this problem using the concepts and the necessary rules. You must specify the uncertain events that will be revealed based on each decision. The random variable of interest is the net contribution can be calculated at the end of each alternative or branch of the decision tree. Therefore in the branches of the diagram decision alternatives were presented with their respective probability and net contribution as a gain or loss. The decision alternatives with uncertain probabilities for drilling Site No. Events are available and would be appropriate to show them on the decision tree diagram (see Annex 1). What would be the likely alternatives Drilling Site Number 1? They are not available directly. We know the odds of having high, low or that the well is dry productivity. However, we can adjust the chart for evaluation inserting another uncertain event as the geological structure (with or without dome). By including this "extra" node, the description of the branches of the decision tree will expand to calculate the return (you only need dry, low or

high to calculate the net contribution). Now include the status of the geological structure.

With the expanded tree diagram decision is straightforward to calculate the probabilities required by the president of the many. Therefore, this problem has to insert the " additional" uncertain event (geological structure) so that the probability can be calculated. The uncertain event should be displayed in the diagram to have an observable result where not only the state of well productivity, but also the state of the underlying structure is found. Addition should be included because the geologist of the company wanted to use it as a basis for probabilistic assessments to the president of the company.