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Investment Centers

The Ohrcart corporation is a large divisionalized manufacturing company. Each division is viewed as an investment center and has complete autonomy for product development, marketing and production.

At the end of 1999, the Velour division identified a new product, Vchrome which can be sold for two years. The manufacture of Vchrome needs a special machine. The net revenue flow from the Vchrome project will yield net cash flows of $5,000 each year. This figure does not include the expenditures needed for the machine for the Vchrome production. You can assume that these cash flows will be realized at the end of the year, every year for two years.

There are two machines available in the market M1 and M2. The M1 machine has a life of one year and no salvage value. The cost of the M1 machine is $4,200. This means that a new M1 machine has to be bought at the beginning of every year for two years. The M2 machine has a life of two years and no salvage value. The cost of the M2 machine is $8,001. This means that only one M2 machine has to be bought at the beginning of the first year.

The Velour division can choose either to buy one M1 machine every year or just one M2 machine. The divisional performance is measured by computing the return on investment and the residual income. Ohrcart has a cost of capital of 10%. This rate is also used in the economic value added computation.

The divisional income is computed after deducting depreciation expense. The capital charge is computed on the beginning value of the assets with the net book value amount used for machines. The divisional managers are paid a constant fraction of the divisional economic value added as bonus every year. The divisional manager discounts future income streams using a discount rate of 25%. Ignore all taxes.

Questions

1 What is the net present value of the Vchrome project to Ohrcart if
(1) one M1 machine is bought at the beginning of each year
(2) one M2 machine is bought at the beginning of the first year.

2 Suppose Ohrcart uses the straight line method for depreciating machines. What is the return on investment and the economic value added each year if
(1) one M1 machine is bought at the beginning of each year
(2) one M2 machine is bought at the beginning of the first year.
Which machine will the Velour division manager choose if he maximizes the present value of economic value added?