LEAN MANAGEMENT CASE STUDY

John projected that the cash flows from this investment for the next 5 years are as follows,

Year	Cash Flows ($)
2020	510,000
2021	520,000
2022	530,000
2023	540,000
2024	550,000

The project's returns for the next 5 years are shown below,

Year	Earnings ($) (After Tax & Depreciation)	Book Value		Average Book Value ($)
		Jan 1 ($)	Dec 31 ($)	
2020	500,000	2,000,000	1,800,000	1,900,000
2021	700,000	1,800,000	1,600,000	1,700,000
2022	1,000,000	1,600,000	1,400,000	1,500,000
2023	1,300,000	1,400,000	1,200,000	1,300,000
2024	1,800,000	1,200,000	1,000,000	1,100,000

Using your knowledge of project evaluation tools, evaluate whether this JIT production strategy is worth HAKKAI's investment.

SOLUTION

We must first discount each year's cash flow to its present value. (Year 2019)
Below are the calculations for years 2020, 2021 & 2022 as examples:

(Calculation formula for NPV)

After finding each year's present value (Year 2019), we can then add all the present values to get a total present value of $2,496,267.08 which we then deduct the initial investment of $2,000,000 to get the Net Present Value to be $496,267.08.

As the NPV is positive, the project is worth the company's investment.

SOLUTION

IRR calculation cannot be done on a traditional calculator.
IRR requires either a financial calculator or Microsoft Excel to calculate.

(Calculation formula for IRR)

Using Microsoft Excel as shown above we get IRR to be 10.04%.
This is higher than the company's cost of funding (2%), therefore the project is worth the company's investment.

SOLUTION

Same as NPV, we must first discount each year's cash flow to its present value. (Year 2019) After finding each year's present value (Year 2019), we can then add all the present values to get a total present value of $2,496,267.08. Dividing the total present value by the initial investment will give us the Profitability Index.

(Calculation formula for PI)

As the Profitability Index (1.25) is more than 1, the project is worth the company's investment as it generates higher returns than the investment required.

SOLUTION

Using both ARR formulas we can calculate the ARR:

(Calculation formula for ARR)

As both formulas for ARR are higher than the company's required rate of return on all projects (40%), the project is worth the company's investment.

SOLUTION

As the cash flows are not equal, we must use this formula to calculate the Payback Period:

(Calculation formula for PP)

The Payback Period is 3.81 years which is lower than the company's required Payback Period of 4 years, the project is worth the company's investment.