**FIU 2017 Spring**

**ESI 6455**

**Advanced Engineering Project Management**

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**Chapter 2 HW: p502,3,4,7**

**2.\* Two new software projects are proposed to a young, start-up company. The Alpha project will cost $150,000 to develop and is expected to have annual net cash flow of $40,000. The Beta project will cost $200,000 to develop and is ex- pected to have annual net cash flow of $50,000. The company is very concerned about their cash flow. Using the payback period, which project is better from a cash flow standpoint? Why?**

The Alpha project payback is $150,000/$40,000= 3.75 years

The Beta project payback is $200,000/$50,000= 4.0 years

Because the company is very concerned about the cash flow, and the Alpha project will get cash flow earlier, so the Alpha project is better from a cash flow standpoint

**3. A five-year project has a projected net cash flow of $15,000, $25,000, $30,000, $20,000, and $15,000 in the next five years. It will cost $50,000 to implement the project. If the required rate of return is 20 percent, conduct a discounted cash flow calculation to determine the NPV.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Project |  | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Required | 20% |  |  |  |  |  |  |
| Outflows |  | -$50,000 |  |  |  |  |  |
| Inflows |  |  | $15,000 | $25,000 | $30,000 | $20,000 | $15,000 |
| Net Inflows |  |  | $15,000 | $25,000 | $30,000 | $20,000 | $15,000 |

Total Inflow is $105,000

Total Net Inflow is $55,000

NPV= = 12895.4475

The project has positive NPV of $12895, so accept.

**4. You work for the 3T company, which expects to earn at least 18 percent on its investments. You have to choose between two similar projects. Below is the cash information for each project. Your analysts predict that inflation rate will be a stable 3 percent over the next 7 years. Which of the two projects would you fund if the decision is based only on financial information? Why?**

**Omega Alpha**

**Year Inflow Outflow Netflow $ Year Inflow Outflow Netflow $**

Y0 0 225,000 -225,000 Y0 0 300,000 -300,000

Y1 0 190,000 -190,000 Y1 50,000 100,000 -50,000

Y2 150,000 0 150,000 Y2 150,000 0 150,000

Y3 220,000 30,000 190,000 Y3 250,000 50,000 200,000

Y4 215,000 0 215,000 Y4 250,000 0 250,000

Y5 205,000 30,000 175,000 Y5 200,000 50,000 150,000

Y6 197,000 0 197,000 Y6 180,000 0 180,000

Y7 100,000 30,000 70,000 Y7 120,000 30,000 90,000

Total 1,087,000 505,000 582,000 Total 1,200,000 530,000 670,000

From the question, the required rate of return should be 18%, so:

Project Omega NPV= -$225,000 + = $119,689

Project Alpha NPV= -$300,000+ = $176525

The two project both have positive NPV and project Alpha NPV is higher, so choose project Alpha.

When consider about the inflation rate, the required rate of return change into 21%:

Project Omega NPV= -$225,000 + = $76,650

Project Alpha NPV= -$300,000+ = $129,536

In this situation, project Alpha still have higher NPV, so choose project Alpha

**7. The Custom Bike Company has set up a weighted scoring matrix for evaluation**

**of potential projects. Below are five projects under consideration.**

**a. Using the scoring matrix below, which project would you rate highest?**

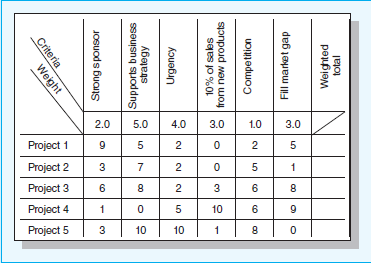
**Lowest?**

**b. If the weight for “Strong Sponsor” is changed from 2.0 to 5.0, will the project**

**selection change? What are the three highest weighted project scores with**

**this new weight?**

**c. Why is it important that the weights mirror critical strategic factors?**



Weighted total

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project | 1 | 2 | 3 | 4 | 5 |
|  | 68 | 57 | 99 | 85 | 107 |

After change

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project | 1 | 2 | 3 | 4 | 5 |
|  | 95 | 66 | 117 | 88 | 116 |

1. The Project 5 have highest rate, and the Project 2 is the lowest.
2. Yes, after the change, Project 3 have highest rate, the three highest are Project 1, 3, 5.
3. Because the weights shows how important the factors influence the project, and which project should be chosen decide which strategic should be chosen.