

Part 1: Cost Benefit Analysis



COMP-604-001 Web Analytics and Business Intelligence Tools

PG Certificate in Artificial Intelligence and Data Analytics (FALL 2023-2024)

Saskatchewan Polytechnic, Saskatoon, SK.

Authors:

Sakin Amin Khan

Md Hefzul Bari

Quadri, Syed Falahuddin

000504749

000486894

000516801

khan4916@saskpolytech.ca

bari7066@saskpolytech.ca

quadri6950@saskpolytech.ca

Instructor:

Himanshu Patel (PhD)

December 08, 2023

A. Scenario A: Onsite

1. Project Costs and Benefits:

Amount in (\$)

Description	Nature	Cost		Benefits	
		One Time	Recurring	One Time	Recurring
Hardware purchase	One Time Cost	150,000	-	-	-
Yearly license fee	Recurring Cost	-	50,000	-	-
Installation expense	One Time Cost	30,000	-	-	-
Consultancy expenses	One Time Cost	20,000	-	-	-
Miscellaneous maintenance expense	Recurring Cost	-	10,000	-	-
Savings from salary expenses	Recurring Benefits	-	-	-	150,000
Saving from carrying cost	Recurring Benefits	-	-	-	1,000,000
Increased revenue	Recurring Benefits	-	-	-	3,000,000

Here, cost and benefits are categorized based on their nature irrespective of the project life. Therefore, all the costs and benefits are not aggregated since that may be misleading without considering the project life.

2. Project Costs for 3/5/7 Years:

Amount in (\$)

Description	Project Life (Years)		
	3	5	7
Hardware purchase (One time cost)	150,000	150,000	150,000
Yearly license fee (50,000 x 3; 50,000 x 5; 50,000 x 7)	150,000	250,000	350,000
Installation expense (One time cost)	30,000	30,000	30,000
Consultancy expenses (One time cost)	20,000	20,000	20,000
Miscellaneous maintenance expense (10,000 x 3; 10,000 x 5; 10,000 x 7)	30,000	50,000	70,000
Total Cost over Project Life	380,000	500,000	620,000

3. Project Benefits for 3/5/7 Years:

Amount in (\$)

Description	Project Life (Years)		
	3	5	7
Savings from salary expenses (150,000 x 3; 150,000 x 5; 150,000 x 7)	450,000	750,000	1,050,000
Saving from carrying cost (1,000,000 x 3; 1,000,000 x 5; 1,000,000 x 7)	3,000,000	5,000,000	7,000,000
Increased revenue (3,000,000 x 3; 3,000,000 x 5; 3,000,000 x 7)	9,000,000	15,000,000	21,000,000
Total Benefits over Project Life	12,450,000	20,750,000	29,050,000

4. Comparison of Project Cost and Benefits for 3/5/7 Years:

Amount in (\$)

Cost and Benefits	Project Life (Years)		
	3	5	7
Total Cost over Project Life (a)	380,000	500,000	620,000
Total Benefits over Project Life (b)	12,450,000	20,750,000	29,050,000
Net Benefits over Costs (c) = (b) - (a)	12,070,000	20,250,000	28,430,000

B. Scenario B: Cloud

1. Project Costs and Benefits:

Amount in (\$)

Description	Nature	Cost		Benefits	
		One Time	Recurring	One Time	Recurring
Yearly user license fee (200 x 100 x 12)	Recurring Cost		240,000		
Internet upgrade expense (1200 x 12)	Recurring Cost		14,400		
Savings from less data centre space	Recurring Benefits				1,500,000
Savings from salary expenses	Recurring Benefits				250,000
Increased revenue	Recurring Benefits				2,750,000

Here, cost and benefits are categorized based on their nature irrespective of the project life. Therefore, all the costs and benefits are not aggregated since that may be misleading without considering the project life.

2. Project Costs for 3/5/7 Years:

Amount in (\$)

Description	Project Life (Years)		
	3	5	7
Yearly user license fee (240,000 x 3; 240,000 x 5; 240,000 x 7)	720,000	1,200,000	1,680,000
Internet upgrade expense (14,400 x 3; 14,400 x 5; 14,400 x 7)	43,200	72,000	100,800
Total Cost over Project Life	763,200	1,272,000	1,780,000

3. Project Benefits for 3/5/7 Years:

Amount in (\$)

Description	Project Life (Years)		
	3	5	7
Savings from less data centre space (1,500,000 x 3; 1,500,000 x 5; 1,500,000 x 7)	4,500,000	7,500,000	10,500,000
Savings from salary expenses (250,000 x 3; 250,000 x 5; 250,000 x 7)	750,000	1,250,000	1,750,000
Increased Revenue (2,750,000 x 3; 2,750,000 x 5; 2,750,000 x 7)	8,250,000	13,750,000	19,250,000
Total Benefits over Project Life	13,500,000	22,500,000	31,500,000

4. Comparison of Project Cost and Benefits for 3/5/7 Years:

Amount in (\$)

Cost and Benefits	Project Life (Years)		
	3	5	7
Total Cost over Project Life (a)	763,200	1,272,000	1,780,000
Total Benefits over Project Life (b)	13,500,000	22,500,000	31,500,000
Net Benefits over Costs (c) = (b) - (a)	12,736,800	21,228,000	29,720,000

Selection of Options for different Project Periods:

Amount in (\$)

Scenario	Net Benefits over Project Life (Years)		
	3	5	7
Onsite	12,070,000	20,250,000	28,430,000
Cloud	12,736,800	21,228,000	29,720,000
Higher Net Benefit	12,736,800	21,228,000	29,720,000
Option to chose	Cloud	Cloud	Cloud

The above table considers whether to choose the onsite or the cloud option for different project life scenarios. For project with 3, 5 and 7 years of life, the cloud option provides more net benefit compared with onsite. As a result, for all the scenarios b i.e., the cloud option should be chosen instead of onsite option.