COST BENEFIT ANALYSIS

This document demonstrates a Cost Benefit Analysis. The pros/cons and finances of the proposed solution are considered to draw a conclusion as to whether the solution should be implemented or not.

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2024

Cost Benefit Analysis Example
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Cost Benefit Analysis

Describe the set of controls that are being considered.

The set of controls that are being considered is the replacement of all gas pumps companywide with ones containing PCI certified payment terminals. This will reduce the potential of yearly card skimming scams by 80% and ensure the safety of customer credit card data as well as avoiding a 50% loss in potential profits.

Describe the informational asset that is being protected.

The informational asset that is being protected is costumer credit card data. If the safety of this data cannot be assured, customers will be forced to pay within the store, driving profits down by 50%.

BEFORE IMPLEMENTING SET OF CONTROLS

What is the value of the asset (AV)?

$400 Million per year

What percentage of the value would be lost if the security incident occurred (EF)?

50% would be lost ($200 million)

SLE = asset value (AV) x exposure factor (EF)

=____$400 Million x 50%_____

=_____$200 Million _____

How frequently would the security incident occur (ARO)?

_____1_____ times per year

What is the Annualized Loss Expectancy (ALE)?

ALE = SLE x ARO

= __$200 Million x 1_____

=__ $200 Million _____

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AFTER IMPLEMENTING SET OF CONTROLS

What is the value of the asset (AV)? Does the asset value change?

After implementing the set of controls, the value of the asset does not change, the chain's profits are still $400 Million.

What percentage of the value would be lost if the security incident occurred (EF)? Does EF change?

If the security incident still occurred after implementing the set of controls, the same percentage would be lost. The likelihood of the security incident happening is less but if it does happen, the impact will remain the same as before. 50% of the asset value would be lost, the EF does not change.

SLE = asset value (AV) x exposure factor (EF)

=_$400 Million x 50%_____

=_$200 Million _____

How frequently would the security incident occur (ARO)? Does the frequency of occurrence change?

_____0.2_____ times per year

Before the implementation of the controls, the likelihood of the attack occurring was 100%. After implementing this control, the likelihood was reduced by 80%. This leaves a 20% chance that the attack occurs or 0.2 times per year. The frequency of occurrence has changed.

What is the Annualized Loss Expectancy (ALE)?

ALE = SLE x ARO

= _$200,000,000 x 20%_____

= _$40,000,000_____

BENEFIT FROM SET OF CONTROLS

Benefit = $ALE_{\text{Before Controls}} - ALE_{\text{After Controls}}$

= _$200,000,000 - $40,000,000_____

= _$160,000,000_____

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COST OF SET OF CONTROLS

What are the capital or one-time costs?

- Consulting Fees to replace the gas pumps
- Cost of new gas pumps
- Installation cost to replace the current pumps with the new ones

The mention of previously paid costs for the consultation and installation of the current pumps were noted but ultimately discarded as they have previously been paid and do not factor into this new control/project. The current pumps hold no residual value.

What is the lifespan of the control?

10 Years

Cost Description	**Cost**	**Converted to Annualized Cost**
Consulting fees to replace the gas pumps	$4 million	$400 Thousand
Cost of new gas pumps	$100 million	$10 Million
Installation cost to replace the current pumps	$25 million	$2.5 Million
Total	$129 Million	$12.9 Million

What are the recurring costs?

- Annual Vendor on-site support
- Additional labour

Cost Description	**Annualized Cost**
Annual Vendor on-site support	$30 million (30% of capital cost of new pumps $100 million x 30%)
Additional labour	$500 Thousand
Total	30.5 Million

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What is the total annual cost of the set of controls (ACS)?

The annual cost for this set of controls is $43.4 Million.

COST BENEFIT ANALYSIS

What is the benefit (calculated above)?

The annual benefit is $160 Million.

The total 10-year benefit is $1.6 Billion.

- The total 10-year benefit was calculated by multiplying the annual benefit by 10.

What is the cost (calculated above)?

The annual cost for this control is $43.4 Million.

The total 10-year cost of this control is $434 Million.

- The total 10-year cost was calculated by multiplying the annual cost by 10.

Is benefit greater or less than cost?

The benefit is greater than cost. The benefit as calculated above is $160 million annually or $1.6 Billion over the lifespan of the control. This is greater than the cost of implementation which is $434 Million over the lifespan of the control or $43.4 Million annually.

Does it make sense to implement the set of controls?

Yes, it makes sense to implement the set of controls. $1.6 Billion minus $434 Million is still a positive benefit of $1 Billion one hundred sixty-six million over the lifespan of the control.