# Assessing and Mitigating Risks to a

# Hypothetical Computer System Case Study

**1. Case Learning Objectives:**

* Identify the threats facing the assets of an organization.
* Determine the asset value for each asset.
* Identify current control measures.
* Identify vulnerabilities of computer systems.
* Assess risk considering the likelihood of the occurrence of vulnerability, the information asset value, current controls and the uncertainty of current knowledge.
* Recommend risk mitigation strategies for controlling risks.
* Formulate a cost benefit analysis on risk controls.
* Evaluate the management decision on risk mitigation strategies.

**2. Case Description**

Read reference [1], and discuss the following questions as a group. You are to submit your answers to the following questions, and make a group presentation on the due date. Your group may be assigned to only one part of the following discussion questions.

**3. Case Discussion Questions and Their Mappings to Bloom’s Taxonomy**

Table 1: Mapping of Payroll Fraud case discussion questions to Bloom’s Taxonomy.

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| --- | --- |
| **Payroll Fraud Case Discussion Questions** | **Cognitive Level** |
| 1. What are the different types of payroll fraud threats? | Level 1 -- Knowledge |
| 2. What is the probability of payroll fraud threats (in terms of high, medium, low)? What is the potential impact of payroll fraud threats (in terms of high, medium, low)? Explain. Refer to [2]. | Level 4-- Analysis |
| 3. According to the Risk-Level Matrix in [2], determine the risk scale of payroll fraud threats. | Level 4 -- Analysis |
| 4. What are the control measures currently in use to protect against payroll fraud? | Level 1 -- Knowledge |
| 5. What are the vulnerabilities related to payroll fraud found by the risk assessment team? | Level 1 -- Knowledge |
| 6. What’s the recommendation by the risk assessment team? | Level 1 -- Knowledge |
| 7. What are the final decisions made by HGA management? Justify their decisions based on cost benefit analysis. | Level 1 – Knowledge  Level 6 - Evaluation |

Table 2: Mapping of Payroll Errors case discussion questions to Bloom’s Taxonomy.

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| **Payroll Errors Case Discussion Questions** | **Cognitive Level** |
| 1. What are the different types of payroll errors? | Level 1 -- Knowledge |
| 2. What is the probability of payroll errors (in terms of high, medium, low)? What is the potential impact of payroll errors (in terms of high, medium, low)? Explain. Refer to [2]. | Level 4-- Analysis |
| 3. According to the Risk-Level Matrix in [2], determine the risk scale of payroll errors. | Level 4 -- Analysis |
| 4. What are the control measures currently in use to protect against payroll errors? | Level 1 -- Knowledge |
| 5. What are the vulnerabilities related to payroll error found by the risk assessment team? | Level 1 -- Knowledge |
| 6. What’s the recommendation by the risk assessment team? | Level 1 -- Knowledge |
| 7. What are the final decisions made by HGA management? Justify their decisions based on cost benefit analysis. | Level 1 – Knowledge  Level 6 - Evaluation |

Table 3: Mapping of Interruption of Operations case discussion questions to Bloom’s Taxonomy.

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| --- | --- |
| **Interruption of Operations**  **Case Discussion Questions** | **Cognitive Level** |
| 1. What are the different types of interruption of operations? | Level 1 -- Knowledge |
| 2. What is the probability of interruption of operations (in terms of high, medium, low)? What is the potential impact of interruption of operations (in terms of high, medium, low)? Explain. Refer to [2]. | Level 4-- Analysis |
| 3. According to the Risk-Level Matrix in [2], determine the risk scale of interruption of operations. | Level 4 -- Analysis |
| 4. What are the control measures currently in use to protect against interruption of operations? | Level 1 -- Knowledge |
| 5. What are the vulnerabilities related to continuity of operations found by the risk assessment team? | Level 1 -- Knowledge |
| 6. What’s the recommendation by the risk assessment team? | Level 1 -- Knowledge |
| 7. What are the final decisions made by HGA management? Justify their decisions based on cost benefit analysis. | Level 1 – Knowledge  Level 6 - Evaluation |

Table 4: Mapping of Disclosure or Brokerage of Information case discussion questions to Bloom’s Taxonomy.

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| --- | --- |
| **Disclosure or Brokerage of Information**  **Case Discussion Questions** | **Cognitive Level** |
| 1. What are the different types of disclosure or brokerage of information? | Level 1 -- Knowledge |
| 2. What is the probability of disclosure/brokerage of information (in terms of high, medium, low)? What is the potential impact of disclosure/brokerage (in terms of high, medium, low)? Explain. Refer to [2]. | Level 4-- Analysis |
| 3. According to the Risk-Level Matrix in [2], determine the risk scale of disclosure/brokerage of information. | Level 4 -- Analysis |
| 4. What are the control measures currently in use to protect against disclosure/brokerage of information? | Level 1 -- Knowledge |
| 5. What are the vulnerabilities related to information disclosure/brokerage found by the risk assessment team? | Level 1 -- Knowledge |
| 6. What’s the recommendation by the risk assessment team? | Level 1 -- Knowledge |
| 7. What are the final decisions made by HGA management? Justify their decisions based on cost benefit analysis. | Level 1 – Knowledge  Level 6 - Evaluation |

Table 5: Mapping of Network Threats case discussion questions to Bloom’s Taxonomy.

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| **Network Threats Discussion Questions** | **Cognitive Level** |
| 1. What are the different types of network threats? Give a scenario where HGA had experienced a network related attack | Level 1 -- Knowledge |
| 2. What is the probability of network threats (in terms of high, medium, low)? What is the potential impact of network threats (in terms of high, medium, low)? Explain. Refer to [2]. | Level 4-- Analysis |
| 3. According to the Risk-Level Matrix in [2], determine the risk scale of network threats. | Level 4 -- Analysis |
| 4. What are the control measures currently in use to protect against network threats? | Level 1 -- Knowledge |
| 5. What are the network-related vulnerabilities found by the risk assessment team? | Level 1 -- Knowledge |
| 6. What’s the recommendation by the risk assessment team? | Level 1 -- Knowledge |
| 7. What are the final decisions made by HGA management? Justify their decisions based on cost benefit analysis. | Level 1 – Knowledge  Level 6 - Evaluation |

1. **References**

[1] National Institute of Standards Technology Standard, “Chapter 20 Assessing and Mitigating the risks to a hypothetical computer system”, *An Introduction to Computer Security: The NIST Handbook,* <http://csrc.nist.gov/publications/nistpubs/800-12/handbook.pdf>, pp. 243-267.

[2] National Institute of Standards Technology Standard, *Risk Management Guide for*

*Information Technology Systems*, NIST special publication 800-30. Available at:

<http://csrc.nist.gov/publications/nistpubs/800-30/sp800-30.pdf>