

# PROBLEMS OF ASSESSING THE RELIABILITY OF INPUT DATA IN INFORMATION SYSTEMS

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**Abstract:**In the modern digital landscape, the reliability of input data is crucial for the effective functioning of information systems, which are integral to various sectors such as finance, healthcare, and logistics. This study investigates the challenges associated with assessing the reliability of input data in these systems. Employing a mixed-methods approach, the research combines quantitative surveys of IT professionals, data scientists, and system users with qualitative in-depth interviews and focus groups. Additionally, a systematic review of existing literature on data reliability and integrity was conducted. The findings reveal significant problems, including data quality issues such as incompleteness, inconsistency, and inaccuracy; challenges in source verification and provenance; issues with

**Keywords:**Data reliability,Information systems,Data quality,Source verification,Real-time data,Human error,Technological limitations, Data integrity,Data provenance, Cybersecurity

## Introduction

In the digital age, information systems are crucial for decision-making processes across various sectors, including finance, healthcare, and logistics. The reliability of input data is fundamental to the effectiveness and accuracy of these systems. However, assessing the reliability of input data presents significant challenges. This article explores these challenges within the IMRAD framework (Introduction, Methods, Results, and Discussion).

## Methods

To investigate the problems associated with assessing the reliability of input data in information systems, this study employs a mixed-methods approach. Quantitative data was gathered through surveys distributed to IT professionals,

data scientists, and system users. Qualitative data was collected via in-depth interviews and focus groups. The study also involved a systematic review of existing literature on data reliability and integrity in information systems.

## Results

The analysis reveals several key problems in assessing the reliability of input data:

### 1. Data Quality Issues:

- Incompleteness: Missing values in datasets can lead to incomplete analyses, affecting the decision-making process.

- Inconsistency: Inconsistent data formats and units can cause significant errors in data interpretation.

- Accuracy: Errors during data entry can result in inaccurate datasets, leading to faulty outputs.

### 2. Source Verification:

- Authenticity: Verifying the authenticity of data sources is challenging, especially with the proliferation of data from various digital platforms.

- Provenance: Tracking the origin and history of data can be complex, making it difficult to ascertain its reliability.

### 3. Timeliness:

- Outdated Information: Data that is not updated regularly can become obsolete, reducing its relevance and reliability.

- Real-time Data Integration: Integrating real-time data from multiple sources while ensuring its accuracy is a significant challenge.

### 4. Human Factors:

- Human Error: Data entry and processing are prone to human errors, which can compromise data reliability.

- Bias: Personal biases of those entering or interpreting data can affect its reliability.

### 5. Technological Limitations:

- System Failures: Hardware and software failures can lead to data loss or corruption.

- Security Breaches: Cyberattacks and data breaches can compromise data integrity and reliability.

### Discussion

The findings indicate that ensuring the reliability of input data in information systems requires a multifaceted approach. Addressing data quality issues involves implementing rigorous data validation and cleansing processes. Developing robust mechanisms for source verification and establishing clear data provenance trails are essential. Regular updates and effective integration strategies for real-time data can enhance timeliness.

Human factors must be mitigated through comprehensive training and the implementation of automated data entry and processing systems to reduce errors and biases. Technological advancements should focus on improving system resilience to prevent failures and protect against security breaches.

The study highlights the need for ongoing research and development in data reliability assessment methods. Collaborative efforts between technologists, data scientists, and end-users are crucial for developing innovative solutions that enhance the reliability of input data in information systems.

### Conclusion

Assessing the reliability of input data in information systems is a complex but critical task. The challenges identified in this study underscore the importance of adopting a comprehensive and systematic approach to ensure data reliability. By addressing data quality issues, improving source verification, enhancing timeliness, mitigating human factors, and overcoming technological limitations, organizations can significantly improve the reliability of their information systems and the quality of decisions derived from them.

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