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DELONE AND MCLEAN METHOD TO MEASURE THE SUCCESS OF INFORMATION SYSTEMS (IS) IN PAKISTAN AND INDONESIA.

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Article Info	Abstract
	The DeLone and McLean Model of Information Systems Success is a framework developed by William H. DeLone and Ephraim R. McLean to measure the success of information systems (IS) in Pakistan and India. The model identifies six interrelated dimensions of IS success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. The original model (1992) identified six dimensions of IS success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. The study aims to address the problem phenomena in information systems, such as user dissatisfaction, system quality, and service quality, which can hinder the overall success of IS. Perceived ease of use and service quality are identified as significant factors impacting user satisfaction and net benefits of academic information systems. Addressing these problems is crucial for improving user experience and system functionality in higher education institutions. The model was first introduced in 1992 and updated in 2003 to incorporate feedback and changes in the field over ten years.

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INTRODUCTION

In this technology era an information system is a necessary needed. But there are Problem Phenomena in Information Systems. They are; first, problem phenomena in information systems refer to the challenges and issues that affect the performance and effectiveness of these systems. Second, common issues include user dissatisfaction, system quality, and service quality, which can hinder the overall success of the information system. Third, in the context of the study, perceived ease of use and service quality were identified as significant factors impacting user satisfaction and net benefits of academic information systems. Fourth, addressing these problems is crucial for improving user

experience and system functionality in higher education institutions.

However, Information System Performance has challenges Affects. They are;

First, User Perception: Perceived ease of use significantly impacts user satisfaction and system effectiveness, indicating that if users find the system difficult to navigate, it can hinder performance [1].

Second, Service Quality: The quality of support services, such as helpdesk assistance, plays a crucial role. Poor service quality can lead to user frustration and decreased system utilization [1].

Third, System Quality: The overall quality of the information system, including its reliability and functionality, directly affects

user satisfaction and the perceived net benefits of using the system [2].

Fourth, mobile Accessibility: Lack of optimization for mobile devices can limit access to academic information systems, making it challenging for users to engage effectively with the system [3].

The DeLone and McLean Model of Information Systems Success is a framework developed by William H. DeLone and Ephraim R. McLean to measure the success of information systems (IS). The model was first introduced in 1992 and was later updated in 2003 to incorporate feedback and changes in the field over ten years [4].

Original Model (1992). The original model identified six interrelated dimensions of IS success:

1. System Quality : Measures the desired characteristics of the IS, such as reliability, usability, and response time.
2. Information Quality : Evaluates the quality of the information produced by the system, such as its accuracy, relevance, and completeness.
3. Use : Captures the extent and nature of the system usage by users.
4. User Satisfaction : Reflects the users' level of satisfaction with the system and its outputs.
5. Individual Impact : Assesses the effect of the system on individual users' performance.
6. Organizational Impact : Measures the impact of the system on organizational performance and outcomes [5].
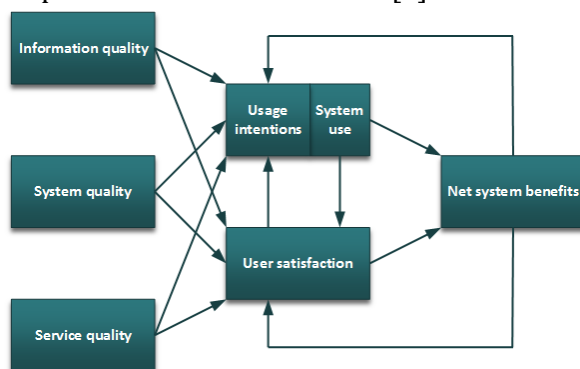
Figure 1. A representation of the IS success model.

Figure 1 shows the information system success model representative from The

DeLone and McLean Model of Ten-Year Update in 2003. The updated model introduced some modifications based on empirical studies and advancements in the field. Key updates include:

1. Service Quality : Added as a separate dimension to account for the quality of support and services provided by the IS department.
2. Net Benefits : Combines the individual and organizational impacts into a single measure, emphasizing the overall benefits of the system to stakeholders.
3. Intention to Use : Acknowledged as an important factor influencing the actual use of the system [6].

The updated model is structured as follows:

1. System Quality
2. Information Quality
3. Service Quality
4. Intention to Use/Use
5. User Satisfaction
6. Net Benefits

Relationships in the Model
- System Quality, Information Quality, and Service Quality influence Intention to Use/Use and User Satisfaction .
- Intention to Use/Use and User Satisfaction affect Net Benefits .
- Net Benefits provide feedback to influence User Satisfaction and Intention to Use/Use .

The DeLone and McLean Model of Information Systems Success has been applied and updated in various contexts over the years. Studies from South Africa, Indonesia, and the UAE have utilized this model to assess the success factors of m-commerce applications [7], government digital services [8], and e-learning platforms [9]. These research papers emphasize the importance of system quality, information quality, service quality, system use, and user satisfaction in determining the success of information

systems [10]. The model has been adapted to measure the success of E-Accreditation in social welfare institutions, highlighting the significance of system quality, information quality, and user satisfaction in this specific context [11]. The continuous application and adaptation of the DeLone and McLean Model demonstrate its relevance and effectiveness in evaluating the success of information systems across different domains [12].

Novel Methodologies and Approaches in this Research; utilized a mixed-method approach, combining quantitative and qualitative methods to assess the post-implementation success of technology performance in Pakistan universities. This approach provided a comprehensive understanding of the impact of technology on faculty, operational, and university performance, enhancing the depth of the study's findings [13].

This research focused on evaluating the success of academic information system using the DeLone and McLean Information Systems Success model. By collecting data from student in Pakistan and Indonesia through an online survey, the researchers were able to quantitatively analyze the factors influencing the perceived success of comprehensive understanding of the impact of academic information system on faculty, operational, and university performance [14].

METHOD

The DeLone and McLean Model is widely used in academic research and practical evaluations of IS success. It provides a comprehensive framework for assessing various aspects of IS performance, guiding both system developers and managers in understanding and improving their systems [15].

The DeLone and McLean Model of Information Systems (IS) Success is a well-regarded framework for assessing the effectiveness and impact of information systems within organizations. The original model was first proposed by William H. DeLone and Ephraim R. McLean in 1992 and was later updated in 2003 to reflect new insights and advancements in the field. Here's an overview of the updated model and its key components:

Original DeLone and McLean Model (1992)

The original model identified six interrelated dimensions of IS success:
1. System Quality : Measures the performance characteristics of the information system, such as reliability, ease of use, and response time.
2. Information Quality : Evaluates the quality of the outputs produced by the system, including accuracy, relevance, and timeliness.
3. Use : The extent to which the system is utilized by users.
4. User Satisfaction : The level of satisfaction among users when interacting with the system.
5. Individual Impact : The effect of the system on the individual user's performance and productivity.
6. Organizational Impact : The effect of the system on the performance and productivity of the organization as a whole [16].

Updated DeLone and McLean Model (2003)

In 2003, DeLone and McLean updated their model to address feedback and incorporate changes in the IS landscape. The revised model includes the following key components:
1. System Quality : Still measures the technical performance of the IS, focusing on features like reliability, usability, and response time.
2. Information Quality : Continues to assess the quality of the system's output, emphasizing accuracy, relevance, completeness, and timeliness.
3. Service Quality : A new dimension added to capture the quality of support services

provided by the IS department or vendor.

4. Use/Intention to Use : Combines actual system use with the intention to use the system, reflecting both current usage and future usage potential.

5. User Satisfaction : Measures the users' overall satisfaction with the IS.

6. Net Benefits : Replaces the separate dimensions of individual and organizational impact with a single dimension that captures the overall benefits of the IS to individuals, groups, and organizations. This could include improved decision-making, increased productivity, cost savings, and other positive outcomes [17].

Interrelationships Among Dimensions

The updated model emphasizes the interrelationships among these dimensions, illustrating how system quality, information quality, and service quality contribute to user satisfaction and system use, which in turn lead to net benefits. These interdependencies highlight the complexity of measuring IS success and the need for a comprehensive approach.

RESULTS AND DISCUSSION

The DeLone and McLean Model of IS Success is widely used in both academic research and practical applications to evaluate the effectiveness of information systems. Organizations can use the model to:

- Assess the current performance of their IS.
- Identify areas for improvement.
- Understand the impact of their IS on user satisfaction and organizational performance.
- Guide the development and implementation of new information systems.

The DeLone and McLean Model of IS Success provides a robust framework for evaluating the multi-dimensional aspects of IS success. Its updated version incorporates the evolving nature of information systems and

continues to serve as a valuable tool for both researchers and practitioners in the field.

The DeLone and McLean Model of Information Systems Success outlines how different elements contribute to the overall success of an information system. Here is an explanation of each step in the diagram:

1. Information Quality : This refers to the quality of the information produced by the system. High-quality information should be relevant, accurate, complete, and timely. Affects both Use and User Satisfaction .

2. System Quality : This relates to the performance of the system itself, including aspects like usability, reliability, and response time. Affects both Use and User Satisfaction .

3. Service Quality : This involves the quality of the support services provided for the system, such as user training and helpdesk support. Affects both Use and User Satisfaction .

4. Use : This represents the extent to which the system is used. High-quality information, system, and services encourage users to utilize the system more. Leads to Net Benefits .

5. User Satisfaction : This is the degree to which users are satisfied with the system. High satisfaction is a result of good information quality, system quality, and service quality. Leads to Net Benefits .

6. Net Benefits : These are the overall impacts of the system on the organization, including increased productivity, cost savings, improved decision-making, etc. High use and high user satisfaction contribute to greater net benefits.

In summary, the model shows how the quality of information, system, and services influences use and user satisfaction, which in turn lead to the net benefits of the information system.

CONCLUSION

Recommendations for Future Researchers; first, Utilize Mixed-Method Approaches: Future researchers can consider employing mixed-method research designs to provide a comprehensive understanding of the impact of technology implementation on various aspects of organizational performance in different contexts. Second, focus on User Perception Studies: Researchers can focus on conducting user perception studies to evaluate the success of applications from the perspective of end-users. This can provide valuable insights into factors influencing user acceptance and perceived success of technology applications.

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