



GROUP 11

Challenge Faced by University Information System

Opportunities to Improve

Visit Our Website



<https://github.com/lzy0007>

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Meet the Group 11



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ABSTRACT



University Information Systems

streamline essential daily operations



Common Challenges

such as maintenance and scalability issues



Leveraging Emerging Technologies

such as cloud computing, AI, and blockchain



Inspire Advancements

without prescribing a definitive architecture



What is UIS

Managing Student, Faculty And Staff Information



Finances, Security and Facilities



academics, research, learning, library resources



centralizing and automating



Bill Gates

Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without talking about the other.



Related Work



Appreciation of Related Work



Challenges of Education Management Information Systems on Primary School Administration



Management Information Systems for Higher Education Institutions



School Management Information Systems: Challenges to Educational Decision-Making in the Big Data Era



Transforming education by using a new generation of information systems



Implementing an Enterprise Information System to Reengineer and Streamline Administrative Processes In a Distance Learning Unit

Appreciation of Related Work



Methodology of Designing



Respondent Perspectives



5-Step Conceptual Model



Current State of System



Distance Learning





Comparison Between Related Work

Compare the related work between each other and with our work

Advanced Technology



Deeper Discussion



Suggestions on each level



Also focuses on scalability and infrastructure



Provide Suggestions through proposed innovative technologies



Comparison with Our Work



Comparison with Our Work



Management

- the design and management
- internal development or external procurement.



Rules and Standard

- adhering to standards, documentation, and ongoing optimization
- focus on management strategies
- restoration timelines and addressing leadership questions.



Technological Solution

- cloud computing to mitigate hardware-related system failures
- delves into technological solutions



Infrastructure Improvement

- The paper provides insights into user perspectives
- focuses on infrastructure improvement.

Comparison with Our Work



Reference

- survey-based examination of Information Systems challenges
- primary school administration
- Identified challenges include such as lack of technical support, insufficient software infrastructure
- Proposed solutions by users such as awareness campaigns



Our Work

- delve deeper into evaluating the practical implementation of these solutions in university settings.
- context of universities.

Comparison with Our Work



Challenges of UIS

- obstacles faced by educational institutions
- data-driven cultures through adoption in the era of big data.
- data quality issues, low user self-efficacy
- delayed information availability
- insufficient executive support.



Decision Making

- five-phase conceptual model.
- decision-making impediments
- doesn't extensively discuss other system components



More Comprehensive

- leverage technology to address
- enhancing infrastructure, decision-making processes, and scalability.



Technological Enhancement

- does not propose such a model
- rather focuses on practical solutions

Comparison with Our Work



Reference

- survey of 64 education data systems across 30 countries
- analyzing factors like integration of analysis and reporting tools
- next-generation systems supporting dynamic learning environments
- existing and future system features related to decision-making
- without providing a detailed roadmap.



Our Work

- practical implementation strategies for leveraging technology in education.
- technological solutions and implementation rather than theoretical frameworks.
- provide actionable suggestions

Comparison with Our Work



User Needs

- **Focus:** User Needs Analysis (Students, Faculty, Staff)
- **Development Process:** In-house & Outsourced Systems
- **Common Challenges:**
 - User Resistance to Change
 - System Security Concerns
 - Data Privacy
- **Importance of:**
 - Clear Guidelines
 - Comprehensive Documentation
 - Continuous Improvement
 - Effectiveness

(Long-Term)



Overarching Complete

- **Our Paper Focus:**
 - Overall System Performance & University Benefits (vs. Specific User Needs)
- **Common Challenges & Enhancement Opportunities** (Insights from Related Work)
 - System Maintenance Integration (Part of Management Strategies)
 - Not Just Advanced Technologies (e.g., Cloud Computing)

Our Opinion Challenges Faced by UIS



Management and Maintenance of Infrastructure



01

The Cost

- Significant Staff & Resource Investment
- Large Budget Allocation: Hardware & Electricity

02

Unforeseen Service Interruption

- Increased Human Resource Costs (IT Team Response)

03

Increasing Requirements

- Demand Increase: Server Access & Data Storage
 - Cost Increases: Electricity, Maintenance, Human Resources
 - Strained UIS Budgets & Capabilities

Poor Utilization of Data



Human Factor

- Challenge: Technical-Non-Technical Staff Gap (Data Analytics)
 - Lack of Professional Training (Studies)



The Greater Competitive Environment

- UIS & Competitive Landscape:
 - Align with Objectives:
 - Personalization
 - Evidence-Based Learning
 - Enhanced School Efficiency
 - Continuous Innovation
 - Drive Informed Decisions & Boost Student Performance

Considerations of the Scalability and Performance



Fluctuating Demands

- Usage Peaks (Registration Periods)
- Increased Error Risk (Non-Scalable Systems)



Growing User Base & Data

- Accommodate More Users & Data Volumes (Effectively)



Performance Bottlenecks

- Performance Bottlenecks (Peak Usage)
 - High Concurrent Users
 - Heavy Workloads



Our Opinion Possible Solution



Cloud Computing

The survey reveals a stark underutilization of cloud computing in university IT departments, with 71.40% never considering its adoption and only 8.80% actively employing cloud computing solutions.



Benefits

- Service Continuity
- Cost-Effective (Pay-As-You-Go Model)
- Reduced Technical Debt:
 - Up-to-Date Infrastructure
 - Less Reliance on Legacy Systems



Technical Architecture

- Mitigate Risk: Hybrid Model (Initial) → Full Cloud Integration (Gradual)
- Reduce Data Loss & System Corruption Risks



Platform Selection

- Robust Migration Services (e.g., AWS Snowball)
- Hybrid Infrastructure Support (Networking)



Location Consideration

- Regulatory Compliance
- Performance Considerations



Integration with Advanced Technology

Business Intelligence

- Deep Analysis without Extensive IT Expertise
- Attractive Option for Universities

Commercial Software

- Despite comprehensive functionalities, integrating commercial SIS & Learning Platforms presents challenges.

AI and ML Algorithm

- Advanced Algorithm Integration (Seamless for IT Teams)



Maintenance



Preventive Maintenance

- Hardware Inspections
- Software Updates
- Automated System Checks (Preventative Problem Identification)



Performance Monitoring

- KPIs for UIS Maintenance (Servers, Networks, Databases, Applications)
- Real-time Identification:
 - Security Risks
 - Resource Anomalies
 - Performance Bottlenecks



User Feedback Mechanism

- Voice Concerns & Recommendations
- Discuss Maintenance Experiences
- Improved User Satisfaction & Maintenance Processes

Conclusion



Challenges

Data Utilization, Scalability, Infrastructure Management



Technology Advancements

Cloud Computing (Reduced Technical Debt, Improved Service Continuity)



Data Analysis Revolution

Advanced Analytics, Data-Driven Decisions



Proactive Measures

Performance Monitoring, Preventative Maintenance, User Feedback



Benefits

Optimal Functionality, Continuous Development, Efficient & User-Friendly UIS Experience (University Community)



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Thank You

For Your Attention



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