(RESEARCH ARTICLE)

Optimizing faculty management: Implementing intranet solutions in academic institutions

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Abstract

This study developed an Intranet-Based Faculty File Management System (FFMS) for the Nueva Ecija University of Science and Technology (NEUST) to streamline submitting and updating essential faculty documents. Faculty members must maintain up-to-date records, such as Personal Data Sheets (PDS) and Annual Accomplishment Reports, for evaluation, promotions, and other administrative processes. This system was evaluated by IT professionals and faculty members on various metrics, including functionality, accessibility, and security, achieving an average rating of "Excellent" across all criteria. The system's development was guided by the System Development Life Cycle (SDLC), ensuring a structured approach from planning to implementation. The results demonstrate that the system is highly applicable and can improve the efficiency of faculty document management.

1. Introduction

Efficient document management is critical in higher education institutions where faculty members are evaluated regularly for promotion, academic contributions, and service performance. Traditionally, this process involves submitting paper-based forms and manually updating records, leading to inefficiencies and delays. The Faculty File Management System (FFMS) was developed to address these challenges by digitizing the process of managing and updating faculty records.

At the Nueva Ecija University of Science and Technology (NEUST), managing faculty reports and submissions presents several concerns, particularly for the Human Resource (HR) Department. One major challenge is the inefficiency of paper-based processes, which leads to delays in updating records and an increased administrative burden on HR staff. This is consistent with findings from studies such as those by Zhou et al. [1], who observed that traditional file management methods often lead to workflow bottlenecks and processing delays in academic institutions. Additionally, the fragmented management of faculty data across departments and within HR makes it difficult to track performance and access documents promptly, as Abubakar et al. [2] highlight that decentralized data management can hinder real-time decision-making and coordination.

Security is another concern, as sensitive information in faculty evaluations and reports is more vulnerable to unauthorized access or data breaches in non-secure or paper-based systems. Xu et al. [3] underscored the importance of secure digital solutions in educational institutions, where faculty and student data breaches can have serious consequences. Furthermore, limited accessibility and portability make it difficult for the HR Department and faculty

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members to access important documents remotely or promptly. According to Komba and Kihombo [4], such challenges can delay crucial processes like promotions and performance reviews. Monitoring submission deadlines and compliance becomes complicated without a centralized system, often delaying decision-making processes for promotions or tenure. Lastly, the manual entry and updating of records increase the risk of errors. At the same time, existing digital solutions may lack the usability needed for smooth adoption by faculty members and HR staff.

The growing need for digitized solutions in academia is well-documented. Al-Kasasbeh, Faouri, and Hmidan [5] highlight that intranet-based systems significantly improve organizational performance by providing centralized access to essential documents. Similarly, Dabbagh and Kitsantas [6] emphasized the importance of usability and accessibility in educational technologies, particularly for faculty management systems. In response to these challenges, this study aimed to develop a system that would streamline faculty file management and address critical system attributes such as security, portability, and usability.

This paper presents the development of the Faculty File Management System (FFMS), from conceptualization to implementation, and provides insights into how it was received by its intended users, including IT professionals, faculty members, and HR staff at NEUST.

Objectives of the Study

The primary objective of this study is to develop an Intranet-Based Faculty File Management System (FFMS) for NEUST, explicitly targeting the submission and management of personal and professional documents required for faculty evaluation and promotion.

The study addresses two key objectives:

- Development of FFMS: To create the system using the phases of the System Development Life Cycle (SDLC), including planning, analysis, design, and implementation.
- System Evaluation: To evaluate the developed system's performance based on the following criteria:
  - Functionality
  - Accessibility
  - Usability
  - Efficiency
  - Portability
  - Security

2. Methodology

2.1. Research Design

This study employed a developmental research approach involving synthesizing various elements to create a new model, concept, or instrument. The System Development Life Cycle (SDLC) was followed rigorously to ensure the system met functional and non-functional requirements.

2.2. Development Phases

2.2.1. Planning

This phase involved gathering data from faculty and HR staff at NEUST to understand the inefficiencies of the existing manual system. Interviews revealed that the manual submission of Personal Data Sheets (PDS) and Annual Accomplishment Reports led to delays and records mismanagement. Henderson and Venkatraman [7] argue that a thorough planning phase is essential for aligning technological solutions with organizational needs, which was vital in this study.

2.2.2. System Analysis

During the analysis phase, the limitations of the existing manual process were documented. These limitations included inconsistent record-keeping, loss of documents, and slow processing times. The FFMS aimed to address these issues by creating a centralized repository accessible via NEUST's internal network.

2.2.3. Design

In the design phase, the system architecture was created using diagrams such as the use-case diagram and database schema. The system was designed to be user-friendly, with an intuitive Graphical User Interface (GUI). Martínez-Núñez and Aedo [8] emphasize the importance of system usability in improving the efficiency of organizational workflows. This guided the design choices, particularly in ensuring faculty members with varying technical skills could easily navigate the system.

2.2.4. Implementation

The FFMS was developed using Node.js, SQL Server 2008, and Web Storm 7.0. These technologies were chosen for their scalability and compatibility with NEUST's IT infrastructure. The system was deployed on NEUST's internal intranet, ensuring secure access for faculty members. Khedr and Yaseen [9] note that secure cloud-based document management systems have gained importance in higher education institutions, further supporting the rationale behind the chosen technologies.
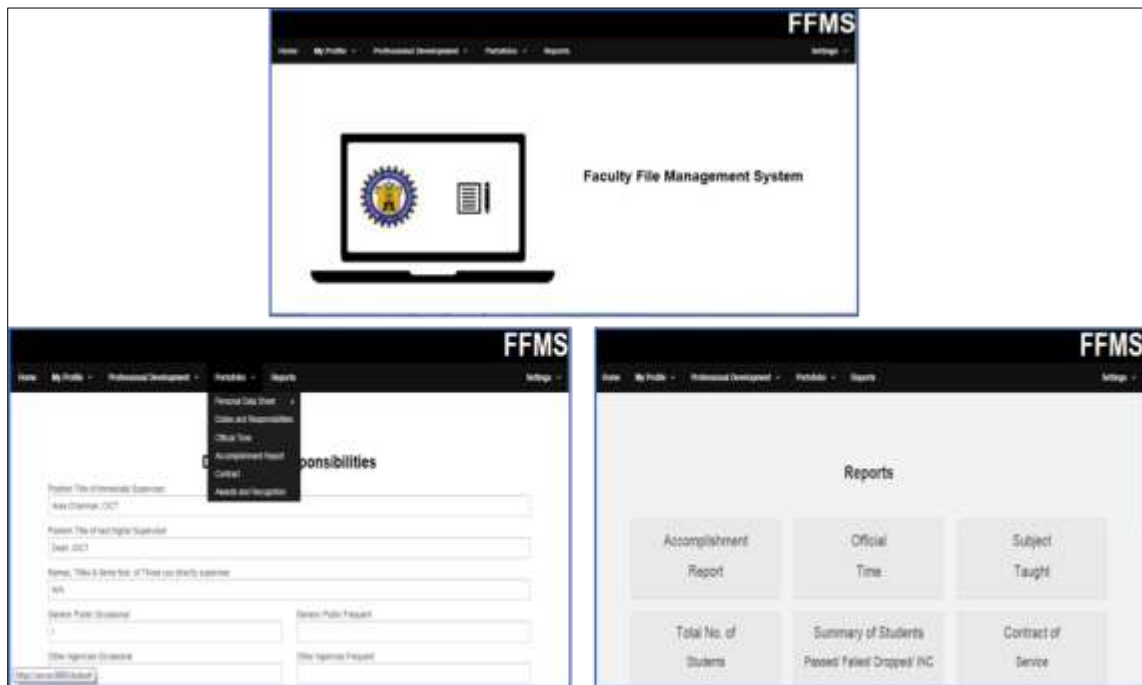
Figure 1 FFMS Graphical User Interface

3. Results and Discussion

3.1. Development of the FFMS

The development process adhered strictly to the SDLC phases, ensuring a systematic and well-documented approach. The system provided an interface for faculty members to upload, update, and manage their professional documents. Faculty members could access their records through the intranet and generate required reports, such as PDS or Annual Accomplishment Reports.

A vital feature of the system is the secure storage of faculty documents. Given the sensitivity of the managed data (e.g., personal identification and academic performance records), security was a top priority during development. The system incorporated encryption and user authentication to ensure only authorized users could access sensitive information. As Khedr and Yaseen (2017) noted, security is a fundamental concern in cloud-based or networked document management systems.

3.2. System Evaluation

The evaluation of the system included feedback from 30 respondents: 5 HR staff, 5 IT professionals, and 20 faculty members. Table 1 summarizes the developed Faculty File Management System ratings across six criteria: Accessibility,

Accuracy, Usability, Efficiency, Portability, and Security. The system received high ratings for Accessibility (4.50) and Accuracy (4.50), indicating it is user-friendly and reliably maintains data. Usability scored 4.37, demonstrating that users can easily interact with the system. Efficiency garnered the highest rating of 4.62, highlighting significant improvements in processing times for faculty evaluations and submissions. Portability (4.47) indicates that the system is accessible across various devices, while Security (4.42) reflects adequate protection of sensitive information. The overall grand mean of 4.48 indicates vital positive feedback, suggesting that the system effectively meets user needs and has the potential for further enhancements through ongoing support and updates.

Table 1 Summary of Ratings on the Developed Faculty File Management System

Criteria	Weighted mean	Verbal interpretation
Accessibility	4.50	Excellent
Accuracy	4.50	Excellent
Usability	4.37	Excellent
Efficiency	4.62	Excellent
Portability	4.47	Excellent
Security	4.42	Excellent
GRAND MEAN	4.48	Excellent

4. Conclusion

The Intranet-Based Faculty File Management System (FFMS) developed for NEUST has demonstrated its effectiveness in addressing the limitations of the manual document management process. The system was highly rated across all evaluation criteria, with efficiency and usability as its most notable strengths. Modern web technologies ensure the system is scalable and can handle the institution's growing needs.

Compliance with ethical standards

Acknowledgments

Disclosure of conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper. All research was conducted impartially, and no financial or personal relationships influenced the findings.

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